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Managing Farm Finances

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U. S. DEPARTMENT OF AGRICULTURE

FINANCIAL SUCCESS or failure of most farmers depends largely on their ability to make well-considered decisions, in view of fluctuating relationships between costs and prices.

This publication aims to (1) provide a general handbook of information that farmers and others can use when they are faced with broad problems of investing or of borrowing money, (2) provide a summary of the main considerations that enter into important decisions in such matters, and (3) provide farmers and others with a general basis for viewing and thinking about some of their more important financial problems.

The facts and materials found in this publication apply generally. Many may not be applicable to a specific situation. For instance, the laws of some States governing real estate purchases and sales, real estate credit, and certain other transactions may vary in some details from those given. It is well for a farmer to get competent local assistance or advice on such matters.

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MANAGING FARM FINANCES

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SUCCESS IN FARMING

ALL FARMERS want to get ahead financially. They hope to own a well-developed farm, have a good house, educate the children, protect the family against their premature death, enjoy some travel, and have enough saved up to be able to retire with reasonable comfort. Some farmers have these things, but many others find it impossible to provide them all. Why do some succeed and others not?

Three main elements must be properly combined if a farm is to be successful financially. These are—good farm management, an efficient farm unit, and a well-managed home. No one element is more important than the others. Serious weakness in any one is likely to mean distress. A farm that is too small will not provide enough income for a reasonable livelihood, no matter how efficiently it is run. Low income often means poor living, a waste of resources, and financial hardship. But without good farm management a farmer cannot expect to get, build up, or maintain an efficient farm, earn enough income to keep the family comfortable, or provide a satisfactory home.

Most farmers will recognize certain points in good farm management. They know that first a farmer must be skillful in handling the physical property. That is, he must know when to plow his land, what kind of seed to buy, what types of fertilizer are needed for different crops, and how to conserve his soil. In addition, he must be handy with a saw and hammer to keep up his buildings, fences, and equipment; he must be something of a mechanic to be able to fix his tractor and repair his machinery (fig. 1). He must be able to handle livestock in a way that keeps them healthy and productive.

Figure 1.—A successful farmer must usually be a good mechanic in addition to knowing how to manage his soil, take care of his livestock, and keep his buildings in repair.

Then he must be able to combine all these into a productive and efficient farm unit.

If farmers have these skills, they are admired and recognized as good farmers; but still many of them go broke or are not financially successful. We all know good farmers who couldn't make ends meet during the early twenties or early thirties. Their farms were foreclosed. Failure was not always due to lack of knowledge in managing the farm itself. Many were licked before they started. They bought their farms at too high a price, paid too much for their machinery, went hog wild in the prices they paid for purebred livestock, or used poor financial judgment in other ways when getting their physical property. Other farmers made money during periods of high prices but bought securities which turned out to be worthless.

Many farmers, of course, ran into hard luck. They were sick or had sickness in the family. They had accidents, or their crops or livestock were hit by disease or storms, floods destroyed their buildings and crops, or some other disaster overtook them. Good management can help to lessen the severity of these misfortunes but it cannot prevent them.

To be successful, farmers must know how to acquire their farms, livestock, machinery, and other items on a sound basis; they must know how to make them produce a good income (not merely produce commodities); and finally, they must know how to invest that income wisely. This combines both proper management of the physical property on the farm and wise financial management of the farm business.

Financial management deals with the management of money. It deals with how a farmer gets his money, whether from farm income or from borrowing; and what he does with his money, whether he spends it or lends it out to someone else. It also deals with money, whether he saves it as cash or whether it is saved in the form of an equity in property. His decisions on how to handle the flow of money into and out of the farm business, as well as his decisions on how to handle the fund of money represented by cash or an equity in farm property is financial management.

PRICES AND THEIR EFFECT ON FINANCIAL MANAGEMENT

Decisions on proper financial management or on handling money are based largely on the value of the dollar in terms of property and the value of property in terms of dollars. Values are dependent on prices—prices paid for the things farmers buy and prices received for the things they sell. But it isn't prices for individual items alone that provide the basis for financial decisions. It is the relation between prices paid and prices received. It is also the relation of prices paid and received by farmers now to such prices in the future.

Certainly, no one can foresee future events exactly, but broad movements can often be figured out fairly well. Even though a farmer may have little direct control over the prices of things he buys and sells he still can usually select what and when to buy and sell. But to do this he must come to a decision as to what he expects future prices to be. This means studying those factors which affect the future prices of the things he buys and sells.

Every farmer knows that there are times when weather and other conditions are all favorable and large amounts of certain crops are produced. Several especially good years are likely to build up a large surplus, or carry-over, that depresses the prices for those crops. If there are prospects that lower prices for them will continue some farmers can shift to growing other crops. Not all farmers have such a choice. They may be limited by climate, soil, machinery, labor, or market. But those who can shift, in light of price prospects, can increase their income.

Income prospects, however, cannot be considered alone; prospective costs must also be studied. The condition of the soil, whether labor

and equipment are available, and many other things must be thought of. They are considered in a Farmers' Bulletin called "Planning the Farm for Profit and Stability," No. 1965, published by the United States Department of Agriculture.

Sometimes there are unusual demands. During the war, for example, there was a special demand for oilseeds. This made the growing of peanuts, soybeans, and flaxseed particularly profitable in the areas where these crops are adapted. Increased demand for food for war-torn or drought-stricken countries are other examples that may mean higher prices for certain crops—and a chance for a better farm income.

Other factors influence the general level of all prices—the prices of commodities that the farmers buy and the prices of those they sell. These general influences on prices bring what are usually called inflations or deflations. But the prices that farmers pay for the things they buy do not necessarily move upward or downward at the same rate as the prices that farmers get for the things they sell.

RELATION OF PRICES PAID TO PRICES RECEIVED

The movement of prices received and prices paid by farmers since 1910 is shown in figure 2. Prices received by farmers during and immediately after World War I rose nearly 2½ times higher than they were in the period 1909–14.

In other words, if a farmer had a particular commodity—such as corn, hogs, or wheat—that had sold at the average of $1 a unit in the earlier period—it would have sold for about $2.50 at the peak of the period following World War I. Furthermore, if he had the same amount of the commodities in both periods, he would have received about 2½ times as much gross income. Shortly after World War I the prices farmers received for commodities fell sharply, and in 1921 and 1922 they were little more than they had been in 1909–14. Then in 1932–34 the prices farmers got fell so low that at one time they were barely two-thirds of what they had been in 1909–14.

In the period of World War II, prices received again shot up, and in 1946 they were more than 2½ times what they were in the 1909–14 period and four times what they were at the bottom of the depression in 1932–34. So, if farmers had the same amount of commodities to sell in 1946 as in 1932–34, they would then receive nearly 4 times as much gross income.

Looking again at figure 2 it is seen that, in general, prices paid and prices received almost move together. During 1920, prices paid by farmers reached a peak which was a little more than double what the average had been in the years 1909 to 1914. They fell to about one and a half times this base in 1921 and fell still further in 1933, to only about 10 percent above the 1910–14 level. By 1946 prices paid by farmers were again nearly as high as in World War I.

It is important to notice the *similarities* between prices received and prices paid; but far more important are the *differences* in the movement of these prices. Figure 2 shows that during the early part of World War I, prices received by farmers went up faster and rose to a relatively higher point than the prices they paid. This

meant an extremely favorable relation between income and expense that lasted for several years.

But when the prices that farmers received for commodities they sold started to fall, they fell faster and went down farther than the prices they paid. In fact, the prices they paid for the things they bought even during the great depression were well above what they were before World War I. But prices they received fell to nearly half what they had been before that war. Price relations that mean substantial increases in net income to farmers when prices to farmers are rising, quickly can mean large and distressing deficits when prices start to fall.

The same tendencies for prices received by farmers to move up at a faster rate than prices paid was noted during World War II.

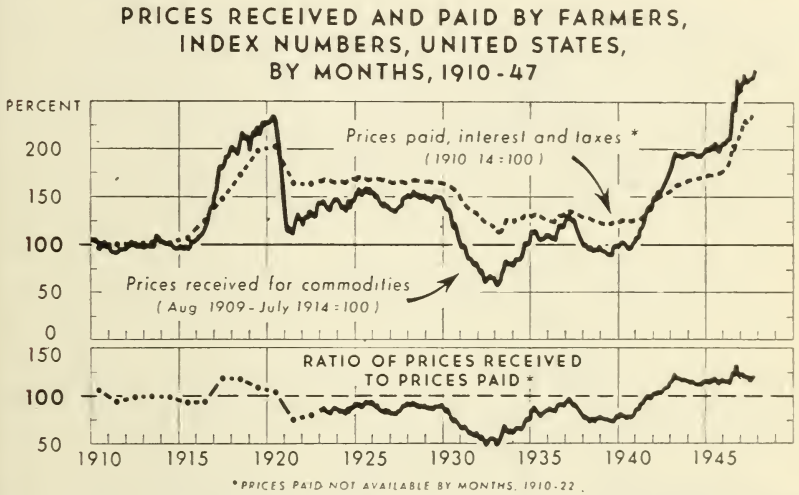

Figure 2.—During both war periods the prices received by farmers went up faster and higher than the prices they paid. But between times the prices farmers paid stayed well above those received for their products as compared to the base period. In the period since World War II the prices paid by farmers again have tended to rise relative to prices received.

As there was much higher production, also, in this period, these prices resulted in much higher gross and net incomes. Farmers generally had more income left after all their expenses were paid. Because of the general shortage in machinery and building materials, they could not buy many items they wanted. This situation makes a postwar period doubly dangerous. Farmers are likely to replace more worn-out machinery than usual, repair more buildings, and make other improvements just when costs are high, particularly in relation to future incomes.

The basic factors that cause prices paid and prices received to move in these relationships to each other seem to be present whenever there is a major swing in prices. Production, for instance, usually responds slowly to changes in prices. With livestock especially, this is due to the long period between the time that farmers decide to increase

or decrease production and the time such changes show up in the amount they send to market. Established crop rotations, or machinery and buildings that are adapted only to certain crops, may discourage

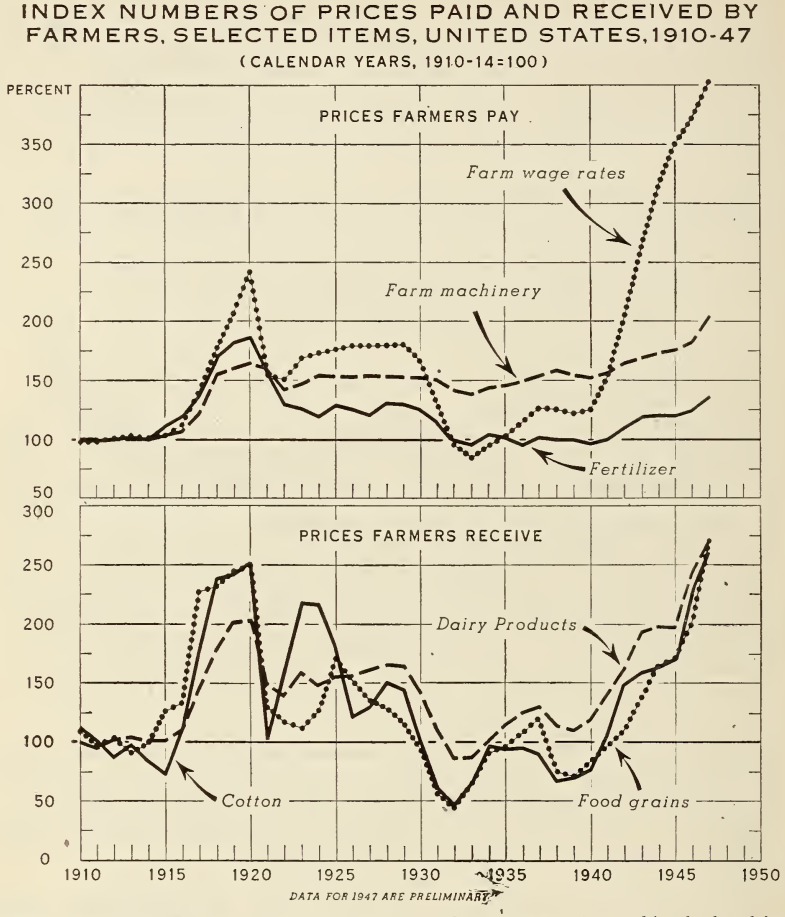

Figure 3.—A comparison with figure 2 will indicate that prices of both the things farmers buy and the things they sell may vary considerably from the general trend. This figure shows that the trend of prices paid and received by farmers in each type of enterprise must be considered individually.

an expensive reorganization in the system of farming, and in the resources used.

As farmers' cash expenses are small relative to the amount of their labor and investments in the business, the prices may have but little effect on their decisions to increase or decrease production. They usually grow as much as they can whether prices are going up or down. Because of this, an unusual demand for farm products will cause farm prices to rise quickly, but they may not be offset by an increased

supply for some time. On the other hand, when prices fall, production is likely to continue high for a considerable time afterward.

But in the industries that produce the things farmers buy, cash expenses are high relative to all the resources put into the business. Most of the labor is hired, and much of the raw material is bought. They can hire more laborers, buy more raw material, and increase their production quickly in response to an increased demand. So the prices of industrial products do not usually rise very fast. When the demand falls off or even when it threatens to fall off, the extra laborers can de discharged, less raw materials are bought, and production is promptly decreased. This industrial flexibility tends to restrain prices paid by farmers when prices in general are rising and tends to maintain the prices of things farmers buy when prices are falling.

Not all commodities that farmers sell or items that farmers buy have the same trend as the general averages shown in figure 2. Each commodity has its particular differences. Figure 3 shows the trend in the prices of a few of the main farm products that farmers sell, and for several items that they buy. In considering a particular problem a farmer often can get from his State college or from the United States Department of Agriculture considerable information on the prices and the price prospects for the commodities he grows or is thinking of growing.

FARMERS' STAKE IN GENERAL BUSINESS CONDITIONS

Consumption and Income Levels

Studies made by the Department of Labor for 1941 show that money expenditures for food increased several times over, as net income increased.[1] This study shows that urban families of two or more persons having an income up to $500 a year spent an average of $183 for food; families having $500 to $1,000 net income a year spent $324 for food; while families having $10,000 or more spent an average of $1,943 for food.

Under these conditions agriculture has a tremendous interest in the general welfare of the public. No group is more dependent upon people in general having full employment, adequate diets, proper clothing, and comfortable housing. Benefits to farmers from full employment are somewhat indirect but they are just as real as some of the more direct methods of supporting or increasing the prices of farm products.

Government Fiscal Policy and Farm Prices

The general governmental policy of obtaining and using money in financing its operations greatly affects the prices of things farmers buy and sell. During a war, for instance, the Government has to raise large sums of money. To do this it often borrows billions of dollars from individuals, banks, and other types of businesses. This money borrowed from banks has a spectacular effect on the amount

[1] United States Bureau of Labor Statistics Family Spending and Savings in Wartime. U. S. Bur. Labor Statis. Bul. 822, p. 218. 1945.

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of money people get and use as cash or put back into the banks as deposits.

Whenever the Government borrows from a bank the banker places the amount borrowed in a deposit account that is just like one he would establish for any individual borrower. This becomes a new deposit and, because of it, the total deposits of banks increase. As the Government draws on this account to pay for weapons, food, and other materials and services, the farmer, the industrialist, or the laborer who receives the money for his products or services either keeps the cash or puts it back in the bank on deposit. So, for practically every dollar the Government borrows from banks there is an equal increase in the amount of money in circulation or on deposit.

Further, when an individual buys bonds he pays for them with cash or check. This transaction if taken by itself immediately decreases the amount of money in circulation or decreases deposits. To offset this he gets a bond. But when the Government spends the money he paid for the bond it again becomes money in circulation or money on deposit. So there is a net increase in bonds in the hands of individuals. When people have lots of money in cash or on deposit in a bank, and when they hold large amounts of Government bonds, they feel better off. They feel wealthier even though the larger amount of money buys no more goods than before.

This increased purchasing power is likely to be maintained in peacetime. It remains as an inflationary factor until enough goods are produced to offset the increased cash and deposits, or until the amount of cash or deposits are reduced through Government reduction in the debt, or in some other way. The only other brake on high prices is a general resistance by consumers against buying at high prices. Such resistance would reduce the number of times a dollar is used. To the extent that consumer resistance is not general, the savings of one group may, of course, mean increased deposits of that group, which in turn may be loaned out to others who could use the credit for more purchases. This might offset the reduced number of times a dollar is used by certain groups. So, to be effective, the resistance must include a large number of buyers.

If people or businesses should go on a borrowing spree, particularly from banks, the money in circulation and deposits may be still further increased. If the loanable funds are used for productive purposes they would not be as inflationary as such funds used for consumption. On the other hand, if they repay their debts to the banks very rapidly, this would reduce these inflationary forces.

Taxation policy also has important influences on the general price level. As taxes are paid, the amount of money and bank deposits in the hands of the general public naturally decrease. But, if the money obtained from taxes is all spent by Government for goods and services it is again received by the public and is held as cash or is redeposited in bank accounts. There is no net change in bank deposits or money in circulation under these circumstances.

But when taxes levied are not enough to meet governmental expenditures people refer to it as "deficit financing." To meet such deficits governments must usually borrow. This is likely to be inflationary, as mentioned before, particularly if the money is borrowed from banks. On the other hand, if taxes are more than enough to meet the

expenditures the surplus may be used to pay off Government debt, particularly the debt that is held by banks. In this case, such policy would tend in general to be deflationary. For if the money is used to pay off the bonds held by banks both the amount of money in circulation and the bank deposits will decrease. If the money is used to pay off bonds held by individuals there will be little effect on total deposits or the amount of money in circulation; only the total amount of bonds will decline.

Fundamentally the extent of inflation or deflation depends upon the amount of money available and being used in relation to the amount of goods available for purchase. Therefore, the general price level reflects the amount of money and also the amount of goods. Those factors which make for high or low production of goods are just as important. Data published regularly in the Federal Reserve Bulletin and in the financial sections of newspapers will help farmers to understand how fiscal policy affects prices.

Commodity Surpluses and Farm Prices

To offset the price-lowering effect of commodity surpluses farmers have cooperated among themselves and with the Government to control these surpluses. When large carry-overs have shown that depressing surpluses were likely, programs have been developed to reduce production and to shift resources to conservation uses, or to products that were more in demand. Then efforts have been made to market surplus commodities more efficiently through marketing quotas and through establishing reserves or ever-normal granaries against possible shortages in future years. The Government has also made price-supporting loans to producers so they could store nonperishable commodities for more favorable later markets.

Programs have also been started to increase the consumption of excessive supplies. These include the school lunch program, supplying food to low-income families through stamp plans, and finding new industrial uses for surpluses.

All of the programs have their influence on the prices farmers receive for their commodities. But even so it is not economical for farmers as a group to produce surpluses. Sometimes overproduction cannot be helped, because of good weather, new varieties, or just the plain fact that we have an abundance of resources suitable for such production. Some farmers cannot shift production to crops that are more in demand because their farms are not suitable for other products. But, as far as possible, it is desirable to grow those crops that are likely to bring reasonable prices when they are ready for the market.

Foreign Trade

Because the United States has much land that is adapted to certain crops, we normally grow more of them than is used in this country. The prices received by farmers for crops such as wheat, cotton, and tobacco often are greatly influenced by a favorable or unfavorable foreign market. Just as the price of one crop is influenced by a foreign market so is the general price level influenced by an active or inactive foreign trade. This has varied greatly over a period of years. Figure 4 shows the amount of imports and exports of agricultural and

nonagricultural commodities for the United States since 1915. During and after World War I and World War II our exports reached their peak.

Exports after World War II no doubt would have been even greater had war-torn countries had dollars or gold with which to do more buying. Foreign countries get dollars from several sources with which to buy goods from the United States. They may, in addition to outright gifts of commodities, sell goods and services to the United States and obtain the dollars or they may borrow dollars from private, govern-

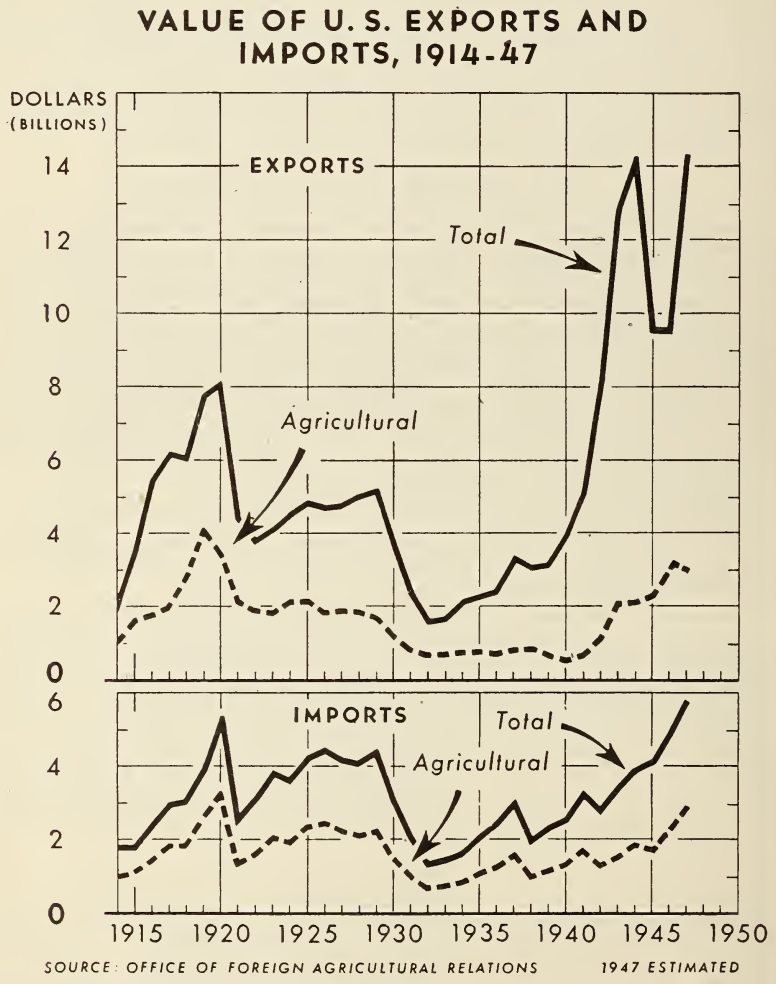

Figure 4.—During both war periods exports and imports increased. But exports have increased at a much greater rate than imports. This difference makes it difficult for foreign countries to get enough dollars to continue desirable trade relationships with the United States.

mental, or world agencies. It is evident from figure 4 that our imports, particularly since 1940, have not been large enough to provide foreign countries with dollars. The difference has had to be made up from other sources. If our exports of agricultural and nonagricultural commodities are to be maintained at favorable levels in peacetime, our imports will have to be increased or more dollars will have to be obtained by foreign buyers from credit.

Government Price Supports For Farm Products

Prices for agricultural products may be supported through several methods. Loans may be made to farmers, based on certain commodities stored on the farm or in approved warehouses and elevators. These loans are often "nonrecourse loans." If the price of the commodity on which the loan is made falls below the loan rate, the Government accepts the stored commodity as full payment for the loan. If the prices go up, the farmer may pay off the loan and sell his commodity. Loan rates made by the Commodity Credit Corporation have ranged from 52 to 95 percent of the parity price, depending upon the commodity and the year.

Prices may also be supported through direct-purchase programs. Commodities have been bought from farmers or from processors in either raw or finished form. When purchases were made from processors, they usually were under an agreement whereby the processor pays the support price to the growers.

Direct payments have also been made to producers and processors. Examples are those made to milk producers to offset high prices for feed, and diversion payments made to starch processors to offset the difference between the value of potatoes used for starch and the prices paid to growers.

During World War II and for a short time afterward many prices of both the things farmers bought and the things they sold were directly controlled by the Government. Many of these wartime restrictions have now been taken off, but governmental action will continue to have an influence, directly or indirectly, on prices.

MANAGEMENT OF MONEY

It is very evident that farmers' dollars buy more at some times than at others. A dollar spent in buying land in 1920, when the price of land was high, would buy less than half as much land as in 1934. In 1934, those who had money to buy land could get, for the same money, nearly 2½ times as much as in 1945 (See discussion on the price of land, page 17). In 1940, a farmer could buy nearly half again as much of the things used in production for the same dollar as he could buy in 1945. So, if he has money either in cash or in a bank account, he should consider before spending it how much it will buy now as compared with what it will probably buy sometime later. Because its value may increase, money may be better spent later than at present. On the other hand, if prices are likely to go up the money may be worth less later on. Just as a farmer sometimes can make money by holding crops to sell at higher prices, he often can get more for his money by holding off, waiting for lower prices of the things he

wants to buy. But changes in the value of money are only one form of gain or loss.

Money may be invested so that it will bring in a return. A farmer may put his money in a savings account in a bank, or lend it to another person. Money so invested usually brings in the annual return called interest. Money used to buy bonds is also in this class. He may also buy stocks and receive a return called dividends. Money that is invested in property usually brings in a return called rent. The desirability of holding money must therefore be compared with the probable gain or loss of principal if it is invested, and the return that can be expected from such investment. It will help, in making such a comparison, to learn how to convert such future returns into present values. The method of doing this is discussed on page 20.

THINGS TO LOOK FOR WHEN INVESTING MONEY

If a farmer decides to invest his money instead of holding cash, he will want to recognize that there are two general types of investments—those that react to price changes like cash and those that react like commodities and property.

A farmer may hold cash and gain purchasing power in the future because the prices of the things he buys later are lower than they were. He may lose purchasing power if prices go up. This is also true of money put in the bank, because the banker promises only to return the same number of dollars as the depositor puts in. The same consideration applies to money put in Postal Savings, savings and loan associations, and to a large extent in bonds, mortgages, and debentures. In these last three classes of investments the issuing agency promises to repay the same number of dollars as invested at a certain time. If the investor must sell before that time, he may gain or lose money depending on how much he can sell the investment for.

On the other hand, a farmer may invest in real property such as a farm, or commodities. But in this case, he may get more money when he sells if prices increase or less money if they go down. Stocks are another investment in this class. In general, the value of a stock moves up and down with the prosperity of the industry against which it was issued.

One of the first considerations, therefore, in investing money is the type of investment to use. Once the general type has been decided upon further investigation should be made to learn the best class of investment within that type. If prices are high, for instance, the farmer may decide to put his money into an investment which reacts like money so it will gain purchasing power later on when prices fall. He still must decide whether to hold cash, put the money in a savings account, or buy a good mortgage or a good bond. If prices are low and are expected to increase, the farmer will want to buy or hold commodities, real estate, or stocks—something that will pay back when sold more dollars than he put in. He still must decide what kind of property to buy or hold.

Safety of Principal, Annual Return, and Term

Regardless of the type and class of investment, there are four important considerations.

All of these factors—probable safety of the money or principal, length of time the money is invested, and the probable regularity of an annual return—are related to the amount of periodic return that can be expected. When money is put in a checking account in an insured bank it now draws no interest. But the money is relatively safe and can be drawn out again whenever it is wanted.

Money put in a savings account also can usually be drawn out whenever wanted, particularly if it has been on deposit at least 30 days. The bank may pay the depositor a small interest rate on savings deposits.

Money placed in Postal Savings and Government Bonds is always considered safe. Money invested in Government bonds may draw regular interest at from slightly less than 1 percent to 2.9 percent depending on the type of bond and the term or length of time before the bond matures. In recent years bonds that do not mature for 20 years or so carry the higher rates while bonds that mature sooner, as in a year or less, carry a lower rate. On the other hand, where there is a high probability of loss of principal, irregular annual returns, etc., certain corporate stocks are likely to sell at a price that will give a relatively high rate of dividends because of greater risk.

Because United States Government and some State and municipal bonds are a safe form of investment, and the returns are regular and the time of maturity is definite, they are usually considered as having little or no risk. Higher rates of returns that may be paid on other investments usually mean that the market thinks there is a higher probability of loss and irregular annual returns.

Beside the primary factors already mentioned there are several others. Many of these are related to risks of loss, rate of return, and the length of term, but they are important enough to be considered further.

Marketability

Many investments—such as bonds, mortgages, and notes—have definite dates when they become due and payable, but they may be transferred or bought and sold before they mature. A few, particularly certain Government bonds, cannot be transferred from one person to another; but the holders of some of these can require them to be redeemed before maturity. Investments that can readily be sold or redeemed are usually more desirable than those which cannot be so cashed in, so they often yield a lower rate of interest or return. If a holder redeems before maturity he often gets a lower rate of return.

Value as Collateral

Bonds, stocks, and other securities that have a relatively stable value will usually be taken by a lender as security for a loan. The more desirable the security is to the lender the more value it has as collateral, and the more money that can be borrowed in relation to the value of the security. So if the investor thinks he is likely to have a temporary need for money and yet does not want to sell his securities and buy them back later, he will buy those that have a high value as collateral.

Taxability

An investor is subject to taxes because of the securities he owns. Either the value of the security or the income from the security may be taxed. Corporation securities, and bonds of local, State or National Governments, are not subject to the same taxes, and they may be taxed at different rates. As an investor is interested in net returns, the differences in the amount of tax should be considered.

Miscellaneous Factors

To some investors who have certain aims in mind other things are important, such as suitable denominations, acceptability for trust funds, permanency of value, and right of beneficiary. But these are not of such general interest.

A desirable investment depends on the characteristics of the investment and on the financial condition of the investor. If a person has lots of money, and a loss would not cause any serious consequence, he may want to assume a greater degree of risk for the possibility of a higher return on his money. On highly speculative investments a person has a chance of either getting a large return or losing everything. Practically all investments have some elements of risk. How much risk any one can take depends on how serious the loss would be should it occur. It should also be pointed out that if a man has lots of money to invest he may be able to obtain a large enough return, out of which to establish a reserve or insurance fund to meet losses.

INVESTMENTS IN THE FARM

A farmer who decides to put his money into the farm usually does so because he believes that it is a better type of investment than holding the money or putting it into some other investment that will react to price changes, like money. He also has decided that it is a better investment than similar types of investments outside the farm. Such a decision is usually based on the fact that he expects the price of the things bought to increase in the future or that the future annual return from such investment will more than compensate for any loss he may take if prices fall. A farmer may, for example, decide to buy an additional piece of land not because he expects land values to rise but because it will increase the efficiency of his farm and the higher future net income will more than offset any decline in land values.

SAVINGS TO GET A FARM AND EQUIPMENT

Investment in the farm, however, has certain peculiarities not common to many other investments. If a farmer has a few hundred dollars he can buy bonds or stocks, and own them completely. If he wants to buy land, machinery, and certain other kinds of farm property he must either have rather large savings or go into debt. Small savings or too large a debt have many elements of danger.

If a prospective farmer wishes to buy a farm, for instance, he will find that a substantial amount of savings is required. Laws or

regulations often limit the size of real estate loans that can be made by such agencies as banks and insurance companies to 50 or 60 percent of the appraised value. Federally sponsored long-term lenders, such as the Federal land banks, are limited to 65 percent of the normal appraised value of the farm. A limited number of loans may be made by the Farmers Home Administration for 90 to 100 percent of the value of the farm, but it must give preference to those who own their own machinery and livestock and to those who also show prospects of becoming good farm managers.

If a person wants to buy a farm—say for $15,000—he usually must have anywhere from $3,500 to $7,500 in cash or an equal amount in the form of other investments. Many farms are bought with a smaller down payment but this often means that the farmer buys too small a farm. Suppose he has $2,000 to invest in a farm and can get a loan for 50 percent of the value. This means he could buy a farm worth only $4,000. With only few exceptions such a farm is not of sufficient size to earn a large enough income to support a farm family. This means also, that there is nothing left over for enlarging the farm to a satisfactory size. The farmer "mines" the soil, the buildings run down, and the farm produces less and less. Finally he has to give up. In the meantime he has lost many years of his productive life.

Not all cases are this bad. Some farmers who buy farms that are too small are able to build them up by skimping and hard work. Others are able to add to their farm income by renting additional land or by work off the farm. To count on such sources of income, however, the farm must be located in an area where additional land or opportunities to work off the farm are usually at hand. But even so, rental agreements are notably for short periods and outside employment may be uncertain. If a person is interested in farming as a vocation and if he is a capable farm manager, it is usually better to rent an efficient unit than to buy too small a farm or buy a larger farm with too small a down payment.

It usually takes sacrifice to save. We want things NOW. Yet the benefits from savings may more than outweigh the present need for many things. The premature purchase of an inadequate farm with a small down payment and a heavy debt may practically mean a poor livelihood for the farmer and his family for years. The same small savings, on the other hand, if wisely invested, may grow within a few years to an adequate amount.

Just look at a few examples: An investment of $1,000 at 3 percent compound interest is worth $1,159 at the end of 5 years and $1,344 at the end of 10 years.[2] So a farmer, by investing $1,000 at 3 percent compound interest for 5 years, could buy a farm (25 percent down payment) that would be 16 percent larger than he could have bought 5 years earlier. He could buy one 34 percent larger if he kept his

[2] Compound interest and how it's figured.—Many think it is hard to figure compound interest, but it is plain multiplication and division. It is fundamental to many financial decisions, particularly in connection with lending and borrowing money for longer than a year. If a farmer lends $100 for 1 year and gets 5 percent interest, he knows that at the end of the year he should get back the $100 he lent plus $5 interest. To arrive at the $5 interest he multiplied $100 x 0.05=$5. To find the total amount which he gets back, interest and principal, he would multiply $100 x (1 +0.05) or $100 x 1.05=$105. If he lends the money for 2 years at the same interest rate the borrower would owe him $5 interest at the end of the first

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money well invested for 10 years. Now suppose he kept on saving an additional $100 a year and invested these new savings at 3 percent compound interest. At the end of 5 years he will have $1,159, plus $539—a total of $1,698. If invested for 10 years, he would have $1,344, plus $1,146, or $2,490 (tables 8 and 9). This latter amount would provide a 25-percent down payment on a farm worth $9,960. An interest rate of practically 3 percent can be obtained on a Government bond if held for 10 years. If a farmer can invest his money at 4 or 5 percent the accumulation of an adequate fund will be much more rapid. Often investments in livestock, machinery, and other farm items will return an interest rate even higher than this. He can figure out how much will be accumulated at various interest rates by referring to table 8 on page 65.

Postponing the purchase of a farm, while saving, does not mean that a person cannot operate a farm. He may rent a farm and have a good source of income out of which to save as well as a good place to invest his savings. If the price of farm land goes down, while the man is working and saving, not only will the savings be larger *but they will buy more*. Thus, savings of $2,500 if used 10 years hence may buy a farm selling for $10,000, which may be worth as much as one selling for $15,000 or $18,000 now. On the other hand, the price of land is sometimes so low that a small down payment may buy a farm of efficient size.

When prices for land are high and likely to go down it is generally thought to be wise to save the money and buy later when the price has dropped and the money is worth more. The opposite is usually true in times of depression.

But these generalizations do not take into consideration the income that can be made on a farm. A farmer may be well able to pay the asking price for the farm if he can foresee that his income, above expenses; in the near future will be high enough for him to pay for the farm or to pay the debt down to a safe level. On the other hand, he might buy the farm at a very low price, only to find the income in the next few years to be too low to pay the ordinary running expenses and the necessary living costs, to say nothing of paying interest and principal on his mortgage.

A farmer should also consider his probable position if, after having bought the farm and farming it for several years, he wants or needs to sell. He might either make a profit or suffer a loss on his investment.

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year and another $5 interest at the end of the second year plus the principal of $100.

But suppose that they agree to treat the $5 interest at the end of the first year as an additional loan; then how much would be owed at the end of the second year? If $105 is owed at the end of the first year then the interest on this amount for the second year would be $105 x 0.05=$5.25. So the amount owed at the end of the second year would be $105 plus $5.25 or $110.25. The process of adding the interest due one year to the principal the next year and the new principal drawing interest the following year is known as compound interest. The amount which would be owed at compound interest is found by multiplying the principal of the loan by 1 plus the interest rate for as many years as the loan runs. Thus, if it ran 2 years, the amount owed would be $100 (1+0.05) x (1+0.05)=$110.25. If the loan ran for 4 years, the amount would be $100 x (1+0.05) x (1+0.05) x (1+0.05) x (1+0.05)=$121.55, etc. A compound interest table is shown on page 65.

From these examples it is evident that financial management means (1) adequate savings, (2) wise purchases, (3) wise use of credit, and (4) wise sale of property and commodities. These four points apply to the getting, use, and sale of any property or commodity. There are both present and future considerations. Carelessness at any step may cause losses.

INVESTMENTS IN LAND

In the preceding section, the principal factors to be considered in making an investment were enumerated. In this section these factors will be related to certain major types of investments. The most important investment made by a farmer is usually the purchase of land. When he buys land he also buys those things which attach to the land such as buildings, fences, a windmill, and timber. Other investments for the farm may be made in machinery, motor vehicles, and livestock. But investments of equal importance may be made in the farm home, for such items as running water, electrical appliances, and many others. These are forms of tangible property. Investments may also be made in such outside items as stocks, bonds, debentures, notes, and mortgages. These are often referred to as intangible property and will be considered later.

Price of Land

The problem of the safety of money used to buy land is primarily one of price—the price paid and the price that will be received if sold. Clearly, if the price paid is larger than the price received later when it is sold the investor loses a part of his principal. But the income he gets during the time he holds the land may not only pay him a reasonable interest on his money, cover depreciation on buildings, etc., but may also partially or fully cover his loss. On the other hand, he may sell the farm for more than he paid for it. Yet the income from the farm may increase his total return, or the annual losses may more than offset any profit realized from the sale. So it is clear that the financial gains or losses from investment in land, as in any other kind of investment, depend upon the annual return from the land as well as the price paid and later received.

The price of land, like the price of other property and commodities, changes a lot in the course of time. Figure 5 shows the general trend in land prices or values from 1912 to 1946. During this period we went through two major wars and two depressions. During the war periods land values were high. The value of an individual farm or individual tract of land of course would not necessarily follow the trend of an index. But if a farmer had bought a farm in 1920 at the over-all index price of $205 an acre, and the later trend of its value had followed the trend of the index, he would have had no chance since then to sell it for as high a price. According to the index he could have gotten only $192 an acre for it in 1947. On the other hand, if he bought the land any time after 1920 he could have sold it in 1947 at a profit. But his profits would have been much greater if the land had been bought in the 1930's.

But when a farmer buys a farm, he usually buys it with the expectation of farming it as long as he is capable of doing so. He may even

figure on his son taking over the property after he retires. So he may give little consideration to the probable later sales price. But, regardless of this, it is fairly certain that if he buys when prices are extremely high he will have little chance of getting all of his money out again. If a farm is bought when land prices are low, the chances are, of course, better that it will bring a higher price whenever it is sold. He may want to sell and retire, or he may find then that land prices are so high he can better afford to sell the farm than to continue to run it. He may decide, for instance, to take his money, get another kind of employment, and hold his dollars until a time when prices will

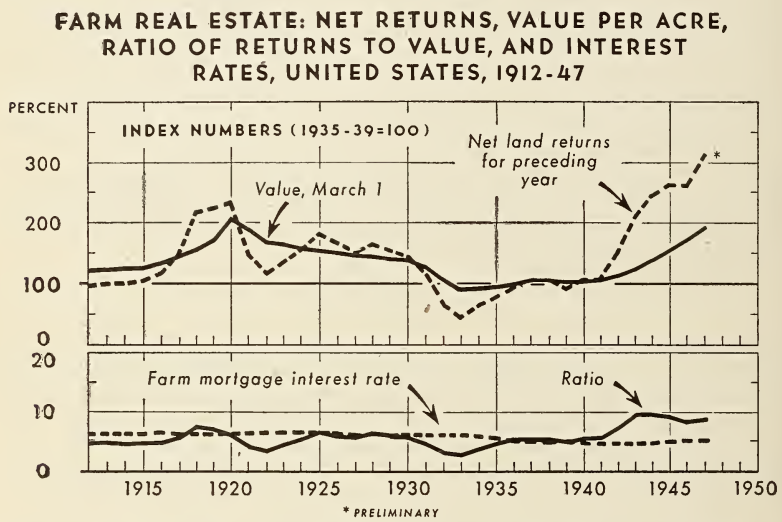

Figure 5.—During both war periods land values were nearly twice as high as the average price during the years 1935–39. The trend of land values in more normal times indicates that farmers should be extremely cautious about buying farms or making other long-time commitments based upon such high values.

again be lower. High land prices offer opportunities for farmers who own land to get their money out of the land. This applies particularly to older farmers who want to retire, or farmers who have other skills than farming, or to those who have found farming not suited to their tastes. Most farmers do not consider enough their other opportunities for using money now invested in land.

Sometimes a person is interested in putting himself to work, as well as his money. If so, he needs to appraise his own abilities. Previous experience may indicate that, because of his superior skills, he can earn more as a farm laborer, farm manager, or farm supervisor than at any other work. If so, he may make more by operating a farm—one that he buys or rents. On the other hand, he may be making good money as a master mechanic, in which case it may pay him to stick to his trade. But this need not prevent him from investing his savings in sound mortgages on farm real estate.

How Much Is a Farm Worth?

The worth of a farm to a farmer depends mostly upon his ability to manage it in such a way that, over a period of time, he will receive a satisfactory wage for his labor and management as well as a competitive return on his investment. Many farmers and farm families are willing to have only a very little money income from their farming, or they will take a very small return on their investment, because they get personal and family satisfactions of several kinds from their home life, their garden, and their farm work.

But when a farmer thinks of buying a farm from a business standpoint alone, he will consider whether the yearly future net income (income in excess of expenses) will be enough to provide a return for his time and money equal to or larger than he could expect to receive from other opportunities.

What guides can he find for estimating the probable returns from farming and from other opportunities? Usually the return from land and buildings can be estimated on the basis of the average amount which they will rent for in the community, year in and year out. An owner must pay taxes, keep up the buildings, etc. When such expenses of ownership have been deducted, the rest of the income may be said to be income from the land and buildings.

The average net land returns per acre are shown on an index basis in figure 5. The net rent from the land may be compared with some similar investment, such as a mortgage on land.

As an aid to thinking about this problem let us assume, for example, that the net rent on a piece of land is likely to be $500 a year. How much money, invested in a mortgage for an indefinite period, would give a similar return at say 5 percent interest? In other words, how do you interpret future expected income in terms of present values? We find in this case it would be $10,000 (this amount multiplied by 0.05 would equal $500). This process, known as the *capitalization of income,* consists of dividing the income by the rate of interest. In the above case it would be $\frac{\$500}{0.05}$ or $10,000. If the interest rate were 4 percent, the capitalized value would be $12,500. In other words, the farmer could afford now to pay up to $10,000 for a farm if the future net rent would amount to $500 per year. If the purchaser had to pay more than $10,000 he might prefer to invest his money in a mortgage instead.

As some farming enterprises are more risky than others, incomes from such farms may fluctuate considerably so a higher capitalization rate may be necessary. For example, if a capitalization rate of 7 percent is used, an annual net rent of $500 would be worth only $\frac{\$500}{0.07}$ or $7,143.

But a modification of the capitalization process needs to be made if we are to reflect incomes which can be expected in the immediate future. An exaggerated example would be to buy a farm at the beginning of a war and practically pay for it out of the income the owner would get for 3 or 4 years, when high prices are paid for farm

products. On the other hand if a man buys a farm at the depth of a depression he may have difficulty making ends meet during the 3 or 4 years immediately afterward when prices he gets are low. Of course, if the value of the farm rises and he sells at a higher price he may make up for some or all of this loss. If a buyer is fairly certain that farm incomes in the next few years will get better, the present capitalized net rent at a given capitalization rate generally will understate the true value of the farm. If prospects for farm income are downward the present capitalized net rent is likely to overstate the true value.

To correct the capitalized future net rents, because in the foreseeable future they may be either higher or lower than the long-run level, we can find the present value of the increase or decrease and add it to or subtract it from the capitalized value. For example, suppose the long-run net rent is assumed to be $5 per acre. If we use a capitalization rate of 5 percent the value would be $\frac{\$5.00}{0.05}=\$100$ per acre. Now suppose that in the next 3 years we could expect the net rents per acre to be $14, $11, and $8. The increment the first year would be $9, the second year $6, and the third year $3. The present value of $9 a year hence is $8.57; the present value of $6, 2 years hence is $5.44; and the present value of $3, 3 years hence is $2.59. The present value of all three would be $\$8.57+\$5.44+\$2.59=\$16.60$. When this amount is added to the capitalized value of $100 per acre it gives an adjusted value of $116.60 per acre. If the immediate future net rents are expected to decline, the present value of each year's decrement would be subtracted from $100.[3]

All good appraisers view the value of the farm from the two standpoints: (1) What is the value of the particular farm relative to other farms on today's market and (2) what is the value of the particular farm today based upon its estimated future earning capacity. A farm, for instance, may be a good buy relative to the price being asked for other farms on the market yet the price may be higher than can be justified by a consideration of expected incomes over the long run.

Mechanics of Buying Land

If a person has decided that the probable earnings from a piece of real estate will justify the price that is asked for it and that the property in general is what he needs, the next step is to buy it—and buy it in the right way. There are many pitfalls in transferring property from a seller to a buyer. In general, the transfer of real property is not difficult but there are more regulations and laws about it than for the sale and purchase of most other forms of property. A person who wants to buy a refrigerator or kitchen stove can go to a dealer, put down his money, and take the goods home with him. Not so, with the purchase of real estate. If the regulations and laws are not followed a farmer may lose considerable money, or get a poor title, or both, so that his ownership of the land and improvements can be questioned.

[3] The formula for finding the present value of a future income is $PV=\frac{a}{(1+i)n}$ where a=future income, i=interest rate, and n=number of years in the future.

In the following section is a checklist of things to consider when buying a farm.[4] They are not all, but after going over them a farmer will be able to ask intelligently for further information from someone in whom he has confidence.

Contract for Sale

After tentatively agreeing with the seller to buy the farm, it is most advisable that all of the terms and conditions of the agreement be put in writing. It is not safe to rely on oral agreements on a sale of real property for, as a general rule, they are not legally effective.

Here are some of the items that should be specified in a contract for sale:

1. The purchase price.
2. When and how the purchase price is to be paid.
3. A complete legal description of the property.
4. Description of any other property included in the sale.
5. Agreement as to who will pay accumulated taxes, insurance, water charges, and other costs which have accrued against the seller but are not yet due.
6. Agreement as to who is to get unharvested crops, Government payments, and other payments accrued in favor of the seller but not yet due. The person eligible for Government payments may be determined by regulation. Check into this before entering into an agreement.
7. Time at which the buyer will get possession of the property.
8. A statement that the seller will provide an abstract of title.
9. A statement that the seller will provide a specified type of deed at the time of settlement and that he will give a merchantable title.
10. Other agreements reached between the buyer and seller, such as those to buy the farm equipment, livestock, and other personal property in addition to the real estate.

In addition, if the contract is to be legal and binding the seller must state in writing that he agrees to sell the farm under the stated conditions and the buyer must agree to accept the offer as it stands. He must make sure that the terms of the contract are satisfactory to him before he accepts and signs it.

Later disagreements, if any, are most likely to arise on just what property was bought in accordance with the terms of the contract. When a person buys real estate it is identified by its legal description. But this description will not indicate anything more than the geographic location of the land. A person who buys real estate also buys the buildings and all permanent improvements on the land. But it is not always clear just what is included as buildings and permanent improvements. So it is wise to have any borderline items clearly set forth in the contract. There have been disagreements, for instance,

[4] Additional information will be found in several State and U. S. Government publications: (1) Using Credit Instruments, by James L. Robinson; U. S. Farm Credit Admin. Cir. 16, 31 pp. rev. 1941; (2) Some Questions to Ask When Buying a Farm, by W. W. Wilcox and P. E. McNall, University of Wisconsin, Ext. Cir. 347, 16 pp. Madison, 1944; (3) Some Legal Safeguards to Take When Buying a Farm, by M. C. Riley, University of Wisconsin, Ext. Cir. 349, 12 pp. Madison, 1944.

over whether a small hog house or chicken house was portable, and so was or was not a part of the farm.

Abstract of Title

The next step in the transfer of a farm is the making or bringing up to date of an abstract of title. In some areas this is referred to as a search of title. A formal abstract may not be drawn up; if it is drawn it may be retained by the abstractor. An abstract of title is essentially a history of the title, showing former transactions affecting the ownership, such as existence of liens and encumbrances, and any other matter which bears on the title to the property.

The chief purpose of an abstract is to furnish the means by which a lawyer or other trained person can make sure that the title is not "clouded,"—that is, that no one else has a claim against the property other than the present owner or other persons whose interest is definitely recognized and accounted for. An example of such a person would be the holder of a mortgage on the farm given by the seller. This holder has an interest in the farm, but this interest can be taken care of by repaying the loan or by the buyer assuming the mortgage. On the other hand, the abstract may show up an earlier mortgagee whose loan has not been released or may never have been paid. This person or his heirs may still have a legal claim against the land. In such a case the present owner may not be able legally to give clear title.

If a competent lawyer or other trained person looks over the abstract at the time of transfer and indicates that the title is not "clouded," the buyer can be reasonably sure he will not be bothered by unexpected claims to interests in the real estate.

The cost of an abstract depends on how complicated earlier matters have been. Some abstracts cost as much as $100, or even more. The contract should say who is to pay the cost.

Some States have Torrens land laws. This means that the State has passed a law that places a State guarantee back of a registered title. Such a law reduces the cost of clearing the title and greatly reduces the risk to the buyer that some party with a claim will turn up later. Under the Torrens system the owner of land may register the title in a public office and get a certificate of title which is, in general, conclusive evidence of title.

Deeds

After an abstract of title has been obtained and examined, the seller draws up a deed. This is a formal paper transferring the title from seller (vendor or grantor) to the buyer (vendee or grantee). There are several types of deeds—sheriff's deed, quitclaim deed, warranty deed, etc. The warranty deed, in giving title to the buyer, warrants that the seller will defend title against anyone who may claim interest, but this warranty is only as good as the man who makes it. Other deeds give the buyer only such rights and interests as the seller may have in the property. So the warranty deed is preferable to the other kinds. As further protection, the buyer of a farm can sometimes get title insurance, under which the insurance company protects the

buyer's title against outside claimants. Some mortgagees require that a borrower have title insurance.

A deed is usually drawn up by a lawyer at the expense of the seller, but so there will be no misunderstanding this item should be included in the contract. When the buyer receives the deed he should make certain that it has been properly recorded in the county records. Deeds require Federal revenue stamps, which the seller pays for, according to law.

There are often interests in property which may *not* show up in an abstract of title. These interests include such rights of others as easements to the use of land as roadways, or liens of laborers for work on the farm, or other obligations against the previous owners. There also may be rights of individuals on the land called "squatters' rights." The squatter may acquire title merely by being in uncontested and complete possession of the property for many years. The number of years varies in different States.

Some buyers of farms have enough money to pay all cash for them. But often a mortgage is given by the buyer as security for a note given as part payment. Financing of the purchase through credit, which is handled when the farm is transferred, is discussed later. (See page 28.)

INVESTMENTS IN MACHINERY AND EQUIPMENT

Persons who operate farms have the need for a further investment in machinery and equipment. Equipment wears out, and the income must be enough for replacing it as well as for providing a return on the money invested.

We can illustrate with a farmer who is trying to decide whether or not to buy a tractor. If he buys it he can do some of the work he has had to hire done. Besides, he could count on some increase in crop yields because he could prepare his seedbed more thoroughly and his tilling and harvesting operations could be done more nearly on time. All in all, he believes that, after the costs of operation are deducted, a tractor would add around $100 each year to his net income during the 10-year life of the machine. How much, then, can he afford to pay for the tractor if he is to get, say, 5 percent on his investment and recover the price of another tractor at the end of 10 years? How much of $100 should be considered interest on the purchase price and how much should be considered a sinking fund with which to buy another tractor at the end of 10 years?

To simplify the problem, let's start with the amount a farmer would have to invest now in order to get $100, a year hence. This amount would be $95.24. For if he loaned out $95.24 at 5 percent interest the borrower would owe him $100 a year later. How does one arrive at the figure $95.24?

We will recall that $100 invested today at 5 percent is worth $100 times 1 plus 5 percent or $100 $\times$ 1.05 = $105 at the end of a year. But what amount of money when multiplied by 1.05 will give us $100 a year later? This may be found by dividing 100 by 1.05, that is, $\frac{\$100}{1.05}$ or $95.24. The amount that would have to be invested now to

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bring $100, 2 years later at compound interest [5] would be, using the same method as above, $\frac{100}{1.05 \times 1.05} = \$90.70$.

The amount which a person would have to invest now to get $100, 3, 4, and 5 years hence, calculated the same way, would be $86.38, $82.27, $78.35, etc. Now the sums of these values for 10 years will give us the amount that would have to be invested now to bring in $100 each year for 10 years. This sum amounts to $772.17 and may be referred to as the present value of a future income of $100 a year for 10 years. Table 1 illustrates how an investment of $772.17 would bring in a return of $100 or enough to pay the farmer 5 percent on his money invested in the tractor and also return the purchase price.

Of this $100 return at the end of the first year, $38.61 would be interest (column 4) and $61.39 would be out of the principal (column 5). The second year he would have invested $772.17 minus $61.39 or $710.78, during the year (column 2). The interest return on the investment for that year would be only $35.54 (column 4) and the principal reduction would increase to $64.46 (column 5). During the tenth year the interest return would be only $4.76 (column 4) and the annual return would be made up mostly of principal. Looking at it another way, the principal of $61.39 the first year, $64.46 the second, etc., is the fund being built up to replace the tractor at the end of 10 years. Table 10 (p. 67) shows the present value of an annual future income of $1 for a series of years and for various interest rates.

TABLE 1.—*Amount of investment necessary to provide a return of $100 each year at 5 percent interest* [1]

1 Year	2 Investment during the year	3 Annual income (4) + (5)	4 Interest earned on the investment 0.05 × (2)	5 Annual recovery of capital value (3) − (4)
1	$772.17	$100	$38.61	$61.39
2	710.78	100	35.54	64.46
3	646.32	100	32.32	67.68
4	578.64	100	28.93	71.07
5	507.57	100	25.38	74.62
6	432.95	100	21.65	78.35
7	354.60	100	17.73	82.27
8	272.32	100	13.62	86.38
9	185.94	100	9.30	90.70
10	95.24	100	4.76	95.24
Total		1,000	227.83	772.17

[1] Computed on rounded figures, may not check precisely.

[5] See footnote 2 for method of calculating compound interest and table 8, p. 65, for a compound interest table.

If a farmer could invest $772.17 at 5 percent and receive a return of $100 a year for 10 years it would not generally pay him to buy a tractor or some other equipment unless it would increase the net income from his farm at least $100 a year for 10 years. Stated another way, if a farmer estimates that a tractor or some other equipment will increase his net income by $100 a year for 10 years he could not afford, from a strictly financial standpoint, to pay more than $772.17 for it. If the alternative investments he could make are poor and he finds that he could not invest his money at more than 4 percent, he, of course, could afford to pay somewhat more for equipment.

This method of figuring out such problems may be clear, but the arithmetic is somewhat complicated. Even men who have calculating machines seldom go to this much trouble. Instead they use tables that provide short cuts to the answers (table 10). Reference to one of these tables emphasizes the striking effect the rate of interest has on the resulting answers.

Rate of interest, (percent)	*Present value of a $100 income each year for 10 years*
1	$947. 13
2	898. 26
3	853. 02
4	811. 09
5	772. 17
6	736. 01

The rate of interest a farmer receives when he has money to lend or invest is usually lower than the rate he must pay if he has to borrow. For instance, if the farmer finds that he could not invest his money at 5 percent but only at 3 percent, he could afford to pay in the neighborhood of $853 for the tractor. (Line 10, column 6, table 10.) The exact amount he will actually have to pay depends, of course, upon the dealer's price which is based on several production and marketing factors.

The added income that a farmer can get because a new tractor enables him to get his crops planted and harvested on time, or which is needed to take the place of labor that is not available, is almost impossible to measure. Yet often these things determine whether a new tractor should be bought. The method discussed, however, does provide a convenient way of thinking about the measurable aspects of the problem.

But what about the man who needs a tractor and must buy it with credit or "on time?" The method of figuring this out is not very different from the case of a farmer who has cash. When he borrows the money he usually pays the merchant, banker, or other lender the interest which otherwise he would get on his own investment. But he may not be able to borrow money at as low an interest rate as he might be willing to take if he invested his own money. For a further discussion of the use of credit in buying machinery and equipment see page 30.

If the price of a tractor seems too high, several other ways are open to the farmer. He may be able to buy it if he will have the time and chance to work with it for neighboring farmers. By doing that he could increase the yearly return from the investment enough to make the purchase feasible.

Another way might be to hire the equipment and let someone else carry the responsibility of the investment in it. Of course, it is sometimes hard to rent a machine just when it is needed. With some farm jobs, a few days delay makes little difference, but with others—such as spraying or harvesting—it could mean heavy losses.

A farmer might also buy the equipment second-hand. To make this worth while he should be a pretty good judge of machinery and able to do much of the repair work himself. If he can do these things, it may be a very good way to reduce farm costs and increase the profits.

So far our discussion has been in terms of purchase of a tractor that the farmer believes to have a 10-year life. Let's suppose, however, that after 5 years' use, the farmer wants another kind of tractor. The kind he wants may have a dustproof cab, extra power, a more convenient way of attaching implements, or part of its advantages may be just in the pleasure of having it. Sometimes changes in machinery design are so good that farmers are justified in casting aside a partly used machine in the interest of greater efficiency; but frequently the new machine may not necessarily increase the returns from farming operations. Even this may be entirely justified if the new machine will reduce the work, save time, or otherwise make the farmer's life more enjoyable.

But if a new tractor is bought purely to increase a farmer's satisfaction, it must be considered in connection with many other articles which will increase the satisfactions of himself and his family. Most of these articles are investments for the home, but not exclusively so.

INVESTMENTS IN THE HOME

One of the essential elements in a successful farm is a satisfactory home life. In managing a business and a home, questions often arise as to how the income will be divided between them. What basis can be found for making the decisions?

Clearly if the income is very low, such income as there is must go to meet the primary needs of the farm family—food, clothing, shelter, and medical care. These will be met first. Anything that remains will be used for necessary expenses for operating the farm. But if the income in the long run is not large enough to cover these basic needs, the farm is doomed to failure. The farmer may carry on for a good while by using up the soil, accumulating debts, and skimping, but eventually the farm income will get smaller, credit will not be available, and the farmer will have to give up. Temporary shortages, of course, may be met out of past savings or by borrowing. Only when the farm income more than covers these essential items is there a chance to improve either the farm, so it will produce more income, or the home, so it will provide a more satisfactory home life. But that which is considered essential for farm family living is changing with the times. With the coming of electricity to rural areas farm families are wiring their houses and are adding other modern facilities dependent on electricity. Thus they are increasing their investments in the farmhouse. At the same time they are increasing their "out of pocket" expenses for household operation.

When the farm income is more than enough to meet the basic needs and a choice can be made, then what basis is there for making a decision? Everyone recognizes that a dollar wisely spent on goods needed in the farm business will increase the net farm income. On the other hand, money spent on goods used only in family living increases family satisfaction. If the farm income is low because of too little land and other resources, it would usually seem best to put the money into those things that will increase the farm income.

Putting money into consumer goods rather than producer goods does not necessarily mean that these goods will be used entirely for family living. Many items for the home add as much to the farm income as items bought strictly for the farm. Money used to put running water in the house, or to buy a mechanical refrigerator, or for other electrical equipment, may directly or indirectly contribute as much to the net income as money used to buy livestock, new machinery, or more land.

On the other hand, the fact that money is invested in the farm business does not necessarily mean that less money can eventually go into better living. If the additional expenditure will bring in a larger income in the course of time than it cost, there is usually a sound basis for use of credit either for further improvements in the farm or for better living. But here again, if the farm income covers only the minimum needs of the family and the farm, there is nothing left to pay on debts. This further points to the necessity of an efficient-sized farm unit. If it isn't an efficient-sized unit, the quicker a farmer can make it so the sooner he can improve his scale of living.

The closer a farmer is to having an efficient-sized unit the more justified he is in buying consumer goods beyond the bare necessities. Investments in better living may be bought for either the farm or the home. A farmer may buy a tractor, for instance, not because it will increase the farm income but because it will reduce his work and give him more free time or time to work on other things, such as adding a much-needed porch or building a new stairway. It may mean about as much improvement for his home as buying new furniture. But such a distinction cannot be too sharply drawn, for if the farmer uses his free time to study his farm business, or if he puts the time to some money-making use, he may actually increase the farm income. In the same way, time saved by a housewife through buying electrical appliances may lead to leisure time, or it may mean more time for canning or for taking care of more chickens, or increasing the net farm income in some other way. The choice of consumer goods, whether for the home or the farm, depends on how they are valued.

In judging which consumer goods to buy, a different standard must be used than when investing more in the farm business. There the test is the additional income it will produce. The test of an investment in better living is its ability to produce satisfaction. The question of whether such investments are worth the price is particularly difficult. The purchaser first must be acquainted with those qualities that will give the satisfaction desired. These must then be judged in relation to the price. Prices of items for direct human consumption often do not reflect satisfaction, but are based on scarcity of raw materials, costs of labor, and other costs of production. Prices may also

reflect temporary or passing fancies, such as peculiar styles in clothing, rather than the more basic qualities of wear, warmth, and color-fastness.

When prices are high it is obvious that dollars spent for consumer goods will buy less than the same dollars will buy when prices are lower. Even though the family members are agreed that they wish to use some of their net income for specific items of consumers' goods, they still have to decide as to whether they will get more satisfaction out of buying these goods when prices are high and the value of the dollar is correspondingly low than they will if they wait until some later date when prices are lower and every dollar spent will go farther.

Families also have to decide whether to use surplus funds for one kind of purpose now or whether to save them for future use and for a different purpose. For instance, it may be a question of buying a new car now or saving the money to provide for old age. Often needs that will come in the future are not given enough weight now. The amount of money that should be saved also has a direct bearing on the needs of the farm to meet future troubles—like droughts, pests, and disease. How much should be saved or put into a reserve is hard to decide, but past experience in the same area will give some basis for a decision. Only when a man sits down and figures out the probable costs of these future needs and how much must be saved between now and then is this problem clear.

It is often said that many farmers put too much value on money as such, or on accumulating land and machinery and livestock, and fail to buy things that are necessary to a full and satisfactory life for their families that they can well afford. Others do not recognize the value of the dollar and spend their money for things that add little to their satisfaction and may even be harmful. Miserliness is not a virtue. A major objective of good financial management is wise investment of money or well-considered spending.

CREDIT IN FARMING

Farmers have several ways of getting the necessary money to run their farms. The most important, of course, is the income from the farm business. If the income in the past has been enough, funds for investment may come from savings. If present incomes are high, there may be funds for many capital investments. But often these sources are not adequate and the farmer, if he finds an investment is desirable, must mortgage his future income by borrowing.

For a further discussion on this subject, see J. L. Robinson, "Using Credit to Farm," U. S. Farm Credit Adm. Cir. E–31, January 1948.

USE OF CREDIT FOR BUYING LAND

Credit can be used wisely in buying land, but only if the farm itself is "bought right." This means that the expected net return from the land in the future will be a reasonable return on the money invested and will also pay the farmer for the risks he takes in ownership. Whether a farmer pays cash for a farm or uses credit, the first step is to learn, as nearly as possible, the probable future net return *from the land.* This is only a part of the total farm return, which also

includes a return for the labor of the farmer and his family, and for the farmer as manager of the farm, as well as a return from the livestock, machinery, and other farm capital.

It is hard to say what part of the total farm income is for wages and what part represents the return to capital. But because many farms are rented, a person can learn with fair accuracy what the return would be for land. That is, the rent from a farm represents about the return that an owner can expect to get. If taxes, repairs on buildings, insurance on buildings, and other expenses of the landlord are deducted from the total rent, the remainder is a net return to the land. From a financial standpoint, unless this net return is as large as the farmer could get from some other use of his money, he should invest in something else. This would be true regardless of who makes the investment. If the investor is a creditor or lender he gets his share of the return as interest on the mortgage; if he is a landlord, he gets his return as rent; whereas the farmer gets his return out of the sale of his products. For a dsicussion of things to be considered when investing in land, see page 17.

The amount of credit that can be extended depends not only on "buying the farm right" but, because most debts are expected to be repaid, it also depends on how much the farmer must save in order to make the required payments of principal. Such savings must come out of his return for labor or management, from interest on his own equity, or from some other source.

So the amount a farmer can save is one of the most important points in deciding the amount of credit that can be safely used to buy a farm. Essentially, this is the amount of net income from the farm over and above necessary living expenses. If the farm is small the amount available to pay debts may be very little or there may be none at all. If that is likely to be true, the farmer would have no basis for credit to buy a farm, for he could not pay off the debt unless he had other money. As living expenses for the family are likely to be nearly the same regardless of the size of the farm it is evident that the farm must be large enough to provide a net income, above living expenses, that will be in keeping with the size of the debt. We all know cases of financial distress that were due to extension of credit on farms where payments could be made only if the family reduced its living far below decent comfort. These cases can be materially relieved, and credit can often be justified for enlarging the farm to an efficient and economic size.

The general assumption when a farmer borrows money is that he will repay it when due. Repayment may be made, however, by refinancing or further borrowing to pay off the previous debt. The debt may be refinanced because of a change in ownership, or to get better terms, or for other reasons. So it is not unusual for a real estate debt to be outstanding for a long time. If the credit can be used by the farmer in such a way that it earns more than it costs, a continuous debt is not undesirable. Other businesses often have debts that are practically continuous. When the outstanding bonds come due, for instance, they are refinanced by a new issue of bonds. Moreover, when a business is starting up, the outstanding debt may increase for a good while. So long as the earning assets increase in

proportion, and the farm increases in efficiency, this may be entirely justifiable.

USE OF CREDIT FOR BUYING MACHINERY

Many farmers are thinking about buying one or more pieces of machinery. How can the yearly capital cost of the new machine be figured and how can a farmer learn whether such an investment will earn enough to cover this cost? Calculations like these will help a farmer to decide whether to buy a machine; and this is true whether he has enough savings of his own or whether he intends to borrow the money. If he has the savings he should expect the net earnings to return his investment plus interest, for if he does not buy the machine he can invest the money somewhere else and draw interest. If he borrows the money his investment must at least earn enough net income to repay the loan plus interest if it is to be successful.

To calculate the probable future net earnings that may result from buying a new machine is not simple. Some new machinery may completely change the system of farming. The purchase of a tractor, for instance, may mean that land has been used for pasture and oats for horses can now be used to grow corn. It may mean that much of the horse-drawn equipment must be sold and replaced by tractor-drawn equipment. It may mean that the farmer has more time and can work more land, raise or feed more beef cattle, or milk more cows. Such big changes make it very difficult to estimate the future costs and income from buying any particular machine. It may be necessary to consider the probable income and expenses for the farm as a unit before and after the changes are made.

Under some conditions it may be perfectly reasonable to buy a machine to reduce the labor, even though the farm income is not increased or may actually be reduced. The justification might be the wish or need for less back-breaking work, which would be a greater personal satisfaction. In another case, it might be higher earnings per hour of labor with a chance to use the extra time profitably.

In some cases a machine does a particular job. If so, the additional return that comes from the use of the machine for that job can be compared with the return if the machine is not used. Suppose, for example, a farmer is considering buying a machine that costs $1,000 and he expects it to last 10 years. If he is to borrow money to buy it, how much would his yearly credit cost him at 5 percent per year? Clearly, he must first pay back, on an average, $100 a year on the loan and then he must pay interest on the balance. This figures out to be $129.50 a year. Table 2 shows how each payment is divided between interest and principal. If this farmer used his own savings, an annual earning of $129.50 for 10 years will return his investment in 10 years and pay him 5 percent interest.[6] If the expected earnings

[6] In the above example, the annual capital or credit cost is 12.95 percent of the amount borrowed. This percentage will give the annual cost of credit for any loan to be paid back in 10 years at 5 percent interest. The annual cost of a loan of $2,500, for instance, would be $325. If a different rate of interest is used and if the number of years over which the loan is to be repaid is more or less than 10 years, a different percentage is used. Table 11 (p. 68) gives some of these factors. Suppose, for example, the machine would last 15 years and the farmer needed to pay only 4 percent for a loan, the annual cost would be 9 percent, or $90 on a $1,000 loan.

from the machine would not be that much, it clearly would not pay to buy it, nor would it pay to borrow the money with which to buy it.

TABLE 2.—*Amortization of a $1,000 loan at 5 percent interest in 10 years*[1]

Payment No.	Annual payment	Interest	Applied on principal	Unpaid principal at end of year
1	$129.50	$50.00	$79.50	$920.50
2	129.50	46.02	83.48	837.02
3	129.50	41.85	87.65	749.37
4	129.50	37.46	92.04	657.33
5	129.50	32.86	96.64	560.69
6	129.50	28.03	101.47	459.22
7	129.50	22.96	106.54	352.68
8	129.50	17.63	111.87	240.81
9	129.50	12.03	117.47	123.34
10	129.50	6.16	123.34	----------

[1] Computed on the basis of rounded figures, may not check precisely.

In addition to this yearly payment of $129.50, there may be other expenses for repairs, grease, oil, storage, etc. These must be added to give the total cost of the machine. But some of these expenses depend upon how much work the machine does. Suppose that the machine to be bought is a corn picker and that the farmer borrows the full amount of money needed to pay for it (fig. 6). If he has 3,000 bushels of corn to pick, the cost per bushel of the machine would be $129.50 divided by 3,000 or 4.3 cents per bushel. If other harvesting costs—hauling, tractor expense, labor, etc.—are figured at 6.3 cents per bushel, the total harvesting cost would be about 10.6 cents per bushel. This cost could then be compared with the cost of hiring the job done by hand, or hiring a neighbor to do it with his corn picker.

In this example it was assumed that the farmer had 3,000 bushels of corn to pick. Suppose he had only 1,500 bushels in his field. Then the yearly cost of a new picker would be about 9 cents per bushel which, together with about 6 cents for other costs, would make a total of 15 cents. If he could hire the job done for 12 cents a bushel it would not seem to be desirable to buy, unless he picks more than his own field with the machine.

Taking on additional work when it will pay is important, for the farmer will not know whether the costs he has figured on will be the same for 10 years. If wages of farm labor should get considerably lower it may prove to be cheaper in the future to hire the work done by hand.

If the farmer buys the corn picker he will have the yearly cost regardless of what prices are. If the price of corn stays high or if it goes higher he will get a larger net income because much of his costs are fixed. But if the price of corn goes down, his costs are just the same as ever so his net income will go down even faster than the

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price does. This is the kind of thing that puts many farmers into financial trouble.

Suppose a farmer is getting $1.20 a bushel for corn. His fixed cost per bushel is 20 cents, and other variable costs are 70 cents per bushel. His total costs are 90 cents and his net return 30 cents per bushel.

Now suppose the price of corn goes down to 60 cents per bushel. Furthermore, suppose that he can reduce the variable costs also by half, from 70 to 35 cents. The fixed cost still remains at 20 cents, making the total cost 55 cents. The net return would then be only 5

Figure 6.—The cost per bushel of harvesting corn with this picker was clearly excessive if the owner used it only on his small farm. But by doing "custom work" for some of the neighbors he actually makes it pay and gets additional income.

cents per bushel. This net return is only one-sixth of what it was when the corn sold for $1.20 per bushel.

Of course, if the farmer has saved enough money to buy the corn picker with cash or check he may be willing to take less interest on his investment during such a period, and his fixed costs will not be as much of a burden, as the example shows. On the other hand, if he has borrowed the money he will have to meet his payments or stand the danger of repossession of the machine.

Detailed calculations of income and expenses are not always necessary or practicable. The experience of other farmers in the community, or research results, often provide a basis for deciding whether to buy certain machinery. In using credit for buying machinery it is important to recognize that its wise use depends upon

the profitability of the investment into which the borrowed money is put.

USE OF CREDIT FOR BUYING CONSUMER GOODS

Credit for purely consumption purposes can be justified financially only when repayment can be foreseen out of future savings. It is different from credit for production primarily because it will not increase the net income. As pointed out, credit for consumption is not necessarily limited to credit used for the home, any more than business credit is confined to credit used to get farm resources. The desirability of using credit for consumption depends entirely on how it is used. If the investment is not sound, it is unlikely that credit for it will be sound.

But that does not mean that if the investment is sound the use of credit will also be sound. Savings may have been accumulated during a time of high incomes when certain items for consumption could be well afforded, whereas the prospects of an income out of which to repay credit, in the future, may be very unfavorable. Regular repayments on credit during such a period may be a real burden.

When credit is used, the terms and conditions must be included in the decision to invest in or buy these items. The terms and conditions of consumer credit are likely to be considerably different from those for production purposes, mainly because things bought with such credit do not earn a money income and the credit is obtained from a different type of lender. Most regular lenders hesitate to compete with this kind of credit, or they do it only at higher interest rates, or they ask for more security. The same types of credit—open accounts, notes, etc.—are available to farmers for consumption as well as for production purposes.

The bulk of consumer credit is extended by the merchants or dealers who sell consumer goods on open accounts for 30, 60, or 90 days or longer. Usually no interest is charged as such, although there may be a discount for cash or the price may be higher than another dealer who does not sell on a credit basis would charge. In most cases merchants do not investigate the credit standing of their customers as much as a bank would or other regular lenders, so losses on such credit are often higher than on other types of credit, and prices of the goods must generally be higher to cover these costs. A person with a good credit standing may be able to borrow from regular lenders as cheaply for consumption purposes as for production, but perhaps not as conveniently.

KINDS OF CREDIT AVAILABLE TO FARMERS

The following sections of this bulletin discuss getting money through borrowing or through credit. The major business justification for a farmer's borrowing money is that it will let him buy things that will provide greater future returns than they cost. So a farmer should decide as nearly as possible what future returns can be expected from his use of borrowed funds, and what the future costs are likely to be. (Note earlier discussion on investments in the farm.)

On the other hand, it may be necessary to analyse the net return from the entire farm business both before and after adding to the farm resources through borrowed funds. This would be true where the investment affected several of the farm operations—for example, borrowing money to start soil-conserving practices that would increase the forage supply and make for more and better livestock production (fig. 7). Regardless of how net returns are figured, the justification for the use of credit in farming is based upon expected net income over and above expenses.

Even after the farm has been bought and equipped, further credit is often needed to maintain and improve its operations. Such credit

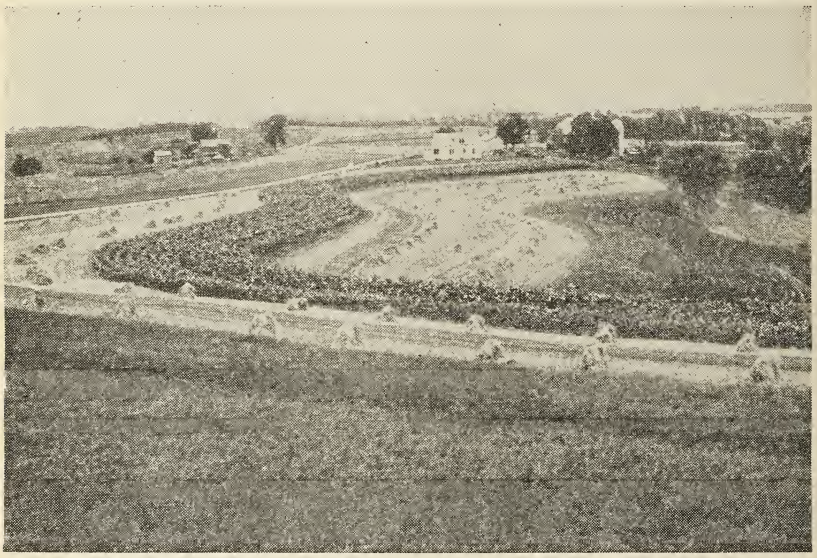

Figure 7.—Getting started in a soil-conserving system of farming may mean additional investments in the farm business from which returns can be expected only after the system is well established. Lending agencies are showing an interest in shaping their lending policies to aid farmers to take this important step. Such loans can be made only on the basis of careful estimates of additional costs and expected returns.

may be obtained the same way as when getting the original resources. Funds may be obtained through mortgage credit; or liens on crops, livestock, or equipment; or notes or open accounts. If it is to be obtained on the best possible terms and is to be used wisely, the characteristics of such credit contracts must be known.

A farmer who wishes to borrow money in connection with his business will first decide the kind of credit he wants or can get. These kinds—open accounts, unsecured notes, chattel mortgages, and real estate mortgages—usually classify credit by the type of security given by the farmer, by the priority of claim the lender has against the borrower, the length of time the loan will run, and the amount of the loan. A small amount of credit for a short term can often be had from

a merchant on open accounts for buying food, clothing, machinery repairs, fertilizer, and other materials. If a man needs a larger amount of credit, needs it for a longer time, or the purpose for which he needs it does not lend itself to credit on an open account, he may be able to get it by giving the lender an unsecured note. If the loan is not too large and will be paid within a few months or a year or so, the lender may ask for a lien on the farmer's chattels (livestock, machinery, crops, etc.). But if the loan is for several thousand dollars and the farmer needs 5 to 40 years to repay it, the lender would almost surely require a real estate mortgage.

There are many variations of credit terms and conditions within this general class. Once a farmer has decided the general class of credit to use, it may then be desirable to look into some of the more important differences within these general types.

Open Accounts

Dealers carry open accounts so a farmer can buy his goods more conveniently. A customer cannot get cash on an open account—only goods. This kind of credit is very common in farm communities. It is so common that the farmer and others give little thought to the price paid for it.

If the cost of open-account credit were generally known, much less of it would be used. It costs money for a dealer to extend credit, whether or not these costs show up in the price of the purchased goods. Some merchants mark the prices of all goods up enough to cover the costs of the credit extended. Others have two prices—one for cash and the other for purchases on account. The actual cost to a farmer of open-account credit is the difference between the cash and credit price.

It is surprising how high a charge is sometimes paid for this kind of credit. It is not uncommon to find discounts of 5 to 10 percent for cash. For instance, a farmer finds he can buy a small implement for $100 and get 3 months credit on an open account. But he also finds that he can buy the same item for $95 cash. If he buys on such credit terms he is paying $5 for the use of $95 for 3 months. This is at the rate of 21 percent interest a year. The chances are that this same farmer could go to a private person, to a bank, or to a production credit association and borrow a full $100 for a similar period at a much lower cost. Of course he and his wife might have to execute a note promising to repay the debt under certain specified conditions. But if he intends to repay the note and will be able to do so, it will make little difference to him whether there is a note or not. In some cases there is no difference in price whether goods are bought on credit or for cash, then the cash customer shares the cost of the credit business.

Unsecured Promissory Notes

The promissory note is the most important instrument used in most credit transactions. In it the borrower promises to repay the lender the amount specified at a certain time and place, and at a certain rate of interest. In some cases, interest is deducted in ad-

vance. That is, the borrower may receive $95 and make out a note which promises to repay $100 later. In such a case, no reference may be made in the note as to interest, except as to interest after maturity if not paid. One form of a promissory note is,

No. ____ Date _____
On _____ (Date) I (we) promise to pay _____ (Lender)
to order _____ (Amount of loan) dollars at _____ (place) (city) (State)
with interest at ____ percent per annum.

The note may contain many other stipulations. These may include the interest rate to be charged on any part of the repayment that may become delinquent. The maker of the note often agrees to pay reasonable lawyers' fees if the lender has to sue in court to recover his money, and he may agree to many other stipulations included in the note to protect the lender from loss. As the note is the main credit document it is well to understand some of the modifications of its basic terms.

Interest Payments

Interest payments on loans may be made: (1) when the note becomes due—usually not more than a year later, (2) periodically during the time the loan is outstanding, or (3) at the time the money is borrowed. An example of the first would be a loan to a farmer of $100 for a year at 5 percent interest. At the end of the year he pays back the principal, or $100, and an additional $5, which is interest on $100 at 5 percent. This is called simple interest.

If the loan runs for several years and the interest is not paid at the end of a year but is added to the principal, which accumulates until the loan becomes due, the interest is called compound interest. (See footnote 2, p. 15.) Thus $105 would be owed at the end of the first year; $105×1.05, or $110.25, would be owed at the end of the second year; $110.25×1.05, or $115.76, would be owed at the end of the third year; etc. Sometimes interest is not compounded and the $100 draws simple interest for 3 years. Under such a condition, the borrower would owe only $115 at the end of the 3-year period. The third kind, where the interest is prepaid, is usually called "discount." Thus a farmer might borrow $100 from a person or a bank but actually get only $95, the $5 being the interest deducted at the time the loan is made. In the first example, where the borrower had the full use of the $100 throughout the year, the $5 in interest represents a true 5-percent rate. But if the borrower is charged $5 discount, and gets only $95, the true rate of interest is $\frac{\$5}{\$95}$, or 5.26 percent. The true rate of interest increases as the period of discount increases. If the period were 2 years, $10 would be deducted, the borrower would have the use of only $90, and the true interest rate would be 5.56 percent.

In general, a farmer should figure out the true interest rate he is paying for a loan by dividing the total dollars to be paid as interest by the average amount of money owed during the period of the loan. This should be done, for it is as well to "shop around" for the best credit terms as it is to shop around for anything else. When figuring

the cost of credit a farmer should include all the other charges as well as interest. Some lenders charge for making out the note, for appraising the property, for closing the loan, and for many other things. If, in the above example, there is a $2 loan-closing fee in addition to the $5 interest at discount the total cost would be $7 for the $95 borrowed. Under these conditions the loan charge would be at the rate of $\frac{\$7}{\$95}$ or 7.37 percent interest. If the farmer received only $93 the loan charge would be at the rate of 7.5 percent.

Compare that rate with a loan which is offered of $100 discounted at 5 percent and to be repaid in four equal installments of $25 each. The borrower is to get $95 when he signs the note. He is to pay back a full $100 in four $25 installments. The difference between the amount he gets and pays back is the interest. But the borrower does not have the full use of $100 throughout the year. The first 3 months he has $95, then when he pays back $25 there is only $70 left to use during the second quarter. In the third quarter he has the use of $70 minus $25 or $45 and the fourth quarter he has the use of $45 minus $25 or $20. Adding $95 plus $70 plus $45 plus $20 and dividing by 4 we get $57.50 the average amount of money used during the year. Dividing the $5 interest payment by $57.50 gives an interest rate of 8.70 percent. Dividing the total interest payment by the average amount borrowed may not always be mathematically exact but it is usually close enough for practical use. The actual rate would be 8.60 percent. These figures are based on a loan for a full year. If the loan were for only 6 months the resulting rate would need to be doubled to get an annual rate, if for 2 years the resulting rate would have to be cut in half.

So much of the Nation's business is now conducted on a credit basis that businessmen have organized to exchange information on their experiences in regard to loans to their customers. Each customer who has an account with a merchant may be given a credit rating although he may not know it. This rating is based on the promptness with which he pays his bills or makes arrangements to extend them. In a fairly short time, the customer has either established a good credit rating or he finds it very hard to open accounts with other merchants, for they have been warned that he is a poor risk.

Sometimes a man who takes pride in paying cash for everything is practically penalized for it. In an emergency, when he may need credit, he may discover that merchants hesitate to grant it because he has not established a credit rating. A good manager often buys some of the larger items for cash but still makes use of some credit. But he should not overlook the possibilities of buying for cash and getting the cash discount when making large purchases.

The important thing is to know how to figure the advantage to be gained by cash payment, or the real cost of the credit that is extended. He should not overlook the fact that adjustments for imperfect goods are frequently made more promptly by a dealer with whom he does a credit business than if the article had been bought for cash. In that case the buyer may have to appeal to the manufacturer of the article.

Provisions for Repayment

The most common modification of the simple promissory note is a requirement for repayment in installments of the amount borrowed. A farmer may borrow $360 from a bank or other lender and repay it in installments of $30 a month for 12 months, plus interest. Or the installment may be quarterly, semiannual, or even annual. Repayment of the debt in regular installments is usually called amortization. Any debt may be amortized, whether it is based upon an unsecured note or on a note secured by chattels or real estate.

One type of monthly amortized loan for $360 carrying an interest rate of one-half of 1 percent per month, or about 6 percent per year, payable in 12 installments would be set up as follows:[7]

TABLE 3.—*Amortization schedule for loan of $360 for 12 months at ½ of 1 percent per month interest*

Period	Unpaid principal	Monthly installment		
		Interest ½ of 1 percent	Principal installment	Total
1	$360	$1. 80	$30	$31. 80
2	330	1. 65	30	31. 65
3	300	1. 50	30	31. 50
4	270	1. 35	30	31. 35
5	240	1. 20	30	31. 20
6	210	1. 05	30	31. 05
7	180	. 90	30	30. 90
8	150	. 75	30	30. 75
9	120	. 60	30	30. 60
10	90	. 45	30	30. 45
11	60	. 30	30	30. 30
12	30	. 15	30	30. 15

The amortization schedule for repaying a loan may call for the total installment to be the same for each period, rather than decreasing as shown in table 3. Under these conditions the principal repayments get larger as interest declines. An example of this kind of an amortization schedule is shown in table 4.[8] Usually the amortization schedule is shown on the back of the note.

[7] Anyone can develop this type of amortization table by merely multiplying the unpaid principal in column 2 by the interest rate per period and adding the interest (column 3) to the periodic principal installment (column 4). The total (column 5) is the amount of the installment to be paid each period. Subtracting the principal repayment from the unpaid balance at the beginning of the period gives the unpaid balance still due at the end of that period or the beginning of the next period.

[8] The monthly installment can be calculated from table 11, p. 68.

TABLE 4.—*Amortization schedule for loan of $360 for 12 months at ½ of 1 percent per month*

Period	Unpaid principal at beginning of month	Monthly installment			Unpaid principal at end of month
		Interest ½ of 1 percent	Principal installment	Total	
1	$360.00	$1.80	$29.18	$30.98	$330.82
2	330.82	1.65	29.33	30.98	301.49
3	301.49	1.50	29.48	30.98	272.01
4 [1]	272.01				

[1] And so forth.

Budgeted Debts

Many borrowers find that their needs for funds vary during the seasons of the year. So they often want credit on a variable basis. A farmer, for example, may want $100 in the spring for seed, fertilizer, etc.; he may need another $100 a few months later to build grain-storage facilities; and still another $100 to pay expenses of harvesting. He expects to repay all of these loans when he sells his crops around the first of the next year.

It would be expensive to borrow the full $300 in the spring because he wouldn't need most of it for several months. Why should he pay interest on money when it is not needed? To make credit available to a farmer in a way to fit his needs as well as his ability to repay, some lenders offer what are popularly called "budgeted loans." By establishing a line of credit a farmer knows he can borrow the money as he needs it during the year and the lender knows in advance what the demands on his funds are likely to be.

Negotiability of a Note

A note ordinarily is a negotiable instrument, that is, it usually can be transferred or sold by the holder to others without consent of the maker. To be negotiable it must meet certain tests. *First*, it must be in writing and signed by the person or persons who make the note. They are called "makers" or "drawers." *Second*, it must contain an unconditional promise to pay a certain sum of money. If the promise to pay depends upon the doing of certain services, for instance, and the money is not payable unless they are done, the note would not be negotiable. Any such condition should be written into the note, for an oral agreement does not usually affect its negotiability. *Third*, the note must be payable on demand or at a time fixed or determinable from the wording of the note. *Fourth*, it must be payable to some person named in the note (to order) or to anyone who holds the note (to bearer). *Fifth*, if it is payble to a payee or to the order of someone, this person must be referred to in such a way that his identity is disclosed with reasonable certainty. Such payee is usually properly

designated when he is referred to by name or by his adopted trade name.

If the note is payable "to bearer," the ownership can be transferred by its delivery to another person. If it is payable "to order" its ownership is transferred by the endorsement (the signing) of the holder, and delivery. The word "endorse" means to write one's name on the back of an instrument. There are several types of endorsement with which a borrower or a lender should be acquainted.

Endorsement of Notes

A note may carry either a general or a special endorsement. A general endorsement means that the endorser will pay if the maker does not pay on due presentment and notice of dishonor is given to the endorser. If the maker of the note fails to live up to its terms the endorser is liable. Even if the note is transferred the endorser continues to be liable to the new holder. Sometimes the maker of a note is required by the lender to obtain an "accommodation endorsement." This has the same meaning as any other endorsement, for the accommodation endorser becomes liable for the note if the maker fails to pay.

If the endorser is the payee, his endorsement makes the note payable to bearer and anyone having the note can then get payment without proving his right to it. Any farmer who signs his name to a note should realize the liability he is assuming.

If the farmer wants to endorse a note and not make it payable to bearer he could sign a special endorsement by naming a new payee. He would do this by using the following language: "Pay to the order of _____" and then signing his own name underneath.
(Name)

This is particularly useful if the farmer is the payee on a note he wishes to transfer to the bank and have the proceeds credited to his account.

When the endorser wants to limit his liability in selling a note he can write the words "without recourse" and sign his name. This relieves the endorser from liability. But it may reduce the security of the note to another person who buys or acquires it. Of course, if the maker is absolutely reliable, the new owner may not insist on a general endorsement before accepting the note at face value.

Joint Makers of Notes

Many lenders in extending credit to a farmer on a note require the signature of both husband and wife, as joint makers. This is done usually for two reasons. *First*, the wife in many cases has a legal interest in any property owned by her husband—for example, she may have a dower right in her husband's real estate. *Second*, sometimes people own property jointly. In the case of joint makers the signers are equally liable. But no endorser has to pay unless the maker defaults.

Holder in Due Course

When a note is transferred from one individual to another, the one receiving the note usually becomes a "holder in due course." This may give him greater rights than the original payee had. One of

the principal reasons for giving a note is to pay for goods or services. Suppose, for example, a farmer buys a machine from a dealer and gives his note in payment. The dealer later on sells the note to a bank. When the farmer tries to use the machine, however, it won't work. But the bank is a holder in due course of the note and can enforce payment by the farmer. The farmer may have cause for a suit against the dealer if the machine was guaranteed but he must pay the note to the banker regardless.

A holder in due course can also enforce payment of a note no matter how he got it. He may have gotten it from someone else who may not have had good title—or even from a thief. A person is a holder in due course if he has taken the note for value, in good faith, before maturity and without notice of any defense.

There are many other negotiable instruments such as checks, drafts, trade acceptances, etc. In general the same rules that apply to notes also apply to other negotiable papers.[9]

Crop Liens and Chattel Mortgages

Generally speaking, a lien is a particular right or claim which one person has in someone else's property. When a farmer borrows money he may give the lender, as security on the note, a lien on certain of his property. If the farmer fails to repay the loan the lender has a right to enforce payment through legal action.

The principal types of these liens used by farmers include crop liens, chattel mortgages, real estate mortgages, deeds of trust, and others. There are certain other liens which may not result from any voluntary agreement or contract between the farmer and lender but result from the operation of statutes or law. These are known as statutory liens. For example, farmer B agrees to allow his pasture to be used by farmer A's cattle during the season. To secure payment farmer A gives farmer B a lien on his cattle. This is a lien resulting from an agreement.

Suppose on the other hand that farmer A's cattle broke out of their pasture, walked down the road, and grazed in farmer B's pasture for a week or more. Because of the law farmer B may acquire a statutory lien on farmer A's cattle that are in his pasture.

There may be many other statutory liens with which farmers should be acquainted. These are different in different States but the most common are labor liens, vendors' liens, and landlord liens. A laborer, for instance, who works for a farmer may have a lien if he is not paid his wages for his work. A carpenter who is hired to put up a building may have a lien if the farmer does not pay him for his job. A merchant or vendor may acquire a lien if a farmer does not pay for supplies or materials that were furnished him. A landlord may also have a statutory lien on some kinds of property owned by a tenant if the tenant does not pay his rent.

The main difference between crop liens, chattel mortgages, and real estate mortgages or deeds of trust relates to the type of property

[9] For further discussion of these instruments write for a copy of Using Credit Instruments from the Division of Information and Extension, Farm Credit Administration, Washington, D. C.

against which the lien is directed. A crop lien, for instance, specifies certain crops as security. Chattel mortgages usually specify such personal property as livestock, machinery, motor vehicles, tools, bonds, or stocks. Real estate mortgages are attached to the land, buildings, and other permanent improvements.

The laws governing many of the provisions of chattel mortgages differ by States. A blank copy of this type of mortgage adapted to the State laws can usually be gotten from local bankers, from the local offices of the production credit association, from the Farmers Home Administration, or from other lenders. Then a farmer can take his time in studying it.

The main provisions of a chattel mortgage are:

1. Date, and identification of parties. The parties to a chattel mortgage are identified usually by name and address. The borrower is usually called the *mortgagor* and the lender the *mortgagee.*

2. Purpose of mortgage. One of the first elements of a chattel mortgage is a statement that the mortgage is "in consideration of and to secure the payment of a debt." The amount of the debt is usually stated and if a promissory note has been given, the note is described.

3. Transfer of title. When a farmer gives a chattel mortgage he agrees to transfer title to the mortgaged property by some such wording in the mortgage as, "The mortgagor does hereby grant, bargain, sell and convey unto the mortgagee the following property." The location and description of the property is then given.

4. Further agreements. The mortgagor usually further agrees that:

(*a*) He is the owner of the property mortgaged and that it is free from all liens and encumbrances. If the property is not free of liens any exceptions are noted and described.

(*b*) He will warrant or guarantee title to the property and defend it against any claims or interests by others.

(*c*) He will pay the debt promptly when it is due, and such costs of the mortgage as agreed upon.

(*d*) He will care properly for the mortgaged property, pay taxes, insurance, etc.

(*e*) He will not sell, remove, or further encumber the mortgaged property.

(*f*) He will allow the mortgagee to enter the farm where the property is held to inspect it.

5. Voiding of mortgage. The mortgage terms further provide that if the debt is paid and other terms of the mortgage are fulfilled the mortgage will be void or cancelled.

6. Result of default. If the debtor is delinquent in repaying the debt or installments, or if he does not meet other terms and conditions of the mortgage, the chattel mortgage usually provides that the mortgagee may (1) declare the whole of the debt due and payable, or (2) take such action as necessary to protect and maintain the value of the property, and (3) charge the mortgagor with any expenses that are necessary to protect the property.

7. Endorsement and acknowledgment. Most mortgages must be signed by the mortgagor and, if his wife has an interest in the property, by both the husband and the wife. In addition, most mortgages have a place for the acknowledgment of the instrument before a notary public and are usually witnessed.

From this brief description, it is evident that the borrower transfers title of the mortgaged property to the lender but that this transfer becomes void if the borrower lives up to the terms of the mortgage. In spite of these provisions, it has been ruled in most States that title is transferred to the lender only for the purpose of obtaining recovery of the debt. The borrower retains possession of the property, and it cannot be taken from him except by foreclosure proceedings.

There are some differences of legal opinion as to whether title actually passes to the lender in case of a mortgage. In some States it is held that title does pass and that if the terms of the mortgage are fulfilled the title must revert to the borrower. If the borrower defaults, the title belongs to the lender even though he has to go through courts for settlement. If, later, the default is made good the lender would have to transfer the property back to the borrower by deed.

Because the property covered by a chattel mortgage is movable and subject to change it is often hard to identify and describe it. Livestock on the farm may be easily identified but the number may be changed by death, sale, purchase, or natural increase. So if livestock is mortgaged, the mortgage is usually written to include "increases in, replacements of, substitutions for, and additions to" such livestock. Most chattel mortgages provide that the borrower cannot sell or move the livestock without the consent of the lender and without an agreement as to the use of the money, if a sale is made.

Crops may be included under a chattel mortgage or a separate crop lien may be used. The two do not differ essentially. But when crops are pledged as security, certain peculiar problems arise. In some States a crop cannot be mortgaged until after it is seeded and in others not until after a certain date. In other States, the crop mortgage may be attached to the borrower's right to produce a crop on the land. Under such conditions any crop grown on the land would be subject to the mortgage whether it was seeded at the time the mortgage was made or not. The mortgage may attach not only to the crop grown during the year but to all later crops until the debt is paid.

Recording Chattel Mortgages and Liens

Any instrument that affects the title to real property should be recorded immediately after it is completed. This means that the mortgage should be shown to the proper county official, usually the registrar of deeds or clerk of the county, who records the essential elements of the mortgage in books that are kept in his office. The reason for keeping such a public record is to give notice to any buyer or creditor that an interest in the property is held by someone besides the owner. Although a mortgage is valid and binding upon the borrower and the lender even though it is not recorded, it would not be binding upon a third party who might buy the mortgaged property or might advance another loan to the borrower without knowing about the first loan.

Real Estate Mortgages

Real estate mortgages, purchase-money mortgages, and deeds of trust are forms of liens on land, buildings, and other permanent improvements attached to the land. The usual broad difference between

these types of real estate liens is in regard to the relation between the contracting parties. A real estate mortgage is a lien given by a borrower to a lender to secure the repayment of a debt. A purchase-money mortgage is given by the buyer of real estate to the seller to secure the payment of the remaining part of the purchase price. A deed of trust is given by a borrower to a third party (called a trustee) who holds the security in trust for the lender.

Characteristics of Real Estate Mortgages

As the main points of each type of real estate lien are about the same, only the provisions for the real estate mortgage will be outlined here. The basic principles are the same for a real estate mortgage and for a chattel mortgage or crop lien. The main differences are in the type of property pledged as security and the length of time necessary to acquire title in case of foreclosure.

Major provisions of a real estate mortgage are:

1. Date when mortgage is made.

2. Name and address of borrower and lender. In a mortgage the borrower is called the *mortgagor* and the lender is known as the *mortgagee*.

3. Consideration. Generally the consideration stated in a mortgage is the actual amount of the debt secured by it. Sometimes no consideration is specified in a mortgage but there is a clause saying that the mortgage is given to secure one or more promissory notes which are described or identified.

4. Transfer and description of property and reconveyance. The mortgagor or borrower conveys, deeds, or transfers title to the described real estate to the mortgagee or lender. But this transfer is subject to a further provision that it is voided if the lender lives up to the provisions of the mortgage. In most States this wording of the mortgage is not considered as actually transferring the title to the mortgagee or lender, but is merely a pledge or security for a loan. Under this interpretation the mortgagee would get title to the property only if the borrower defaults or fails to live up to the terms of the contract. Even then, the title passes to the mortgagee only after foreclosure proceedings are finished. But in some States a mortgage is considered as passing title to the lender subject only to reconveyance of title if all the terms of the mortgage are fulfilled. Under such interpretation the mortgagee may often be required to execute a bond to guarantee reconveyance. Under either interpretation the possession of the property remains in the borrower's hands.

5. Warranties or agreements by the borrower. In most mortgages the borrower declares or warrants that he is owner of the real estate to be mortgaged, that he will defend the title against any other person claiming an interest and that it is free from all liens or encumbrances other than those that are described.

Besides such declarations, the borrower usually agrees:

(*a*) To pay taxes, assessments, judgments, and other liens when they are due.

(*b*) To keep the buildings and other improvements insured to the satisfaction of the lender.

(*c*) To keep buildings in good repair, and to permit no waste or impairment in the value of the real estate. Permitting no impairment usually includes practicing approved methods of farming, preventing erosion, eradicating noxious weeds, and preserving the fertility of the soil by growing legumes, fertilizing, etc.

6. Default. Default is the failure on the part of the borrower to meet the terms of his mortgage by not paying interest or principal when due, by failing to keep up the insurance or pay taxes, or by failing to perform any other of the things he agrees to in the mortgage. The mortgage usually has several provisions as to the rights of the lender under such conditions. Some of the most common provisions are that, in case of default, the entire amount of the debt becomes due and payable, and the interest rate increases to a penalty rate. In most cases they also authorize the mortgagee or lender to start foreclosure proceedings or to take any other available legal steps to protect his interest. Furthermore, in case of default the borrower usually agrees in the mortgage to bear certain of the costs of foreclosure.

7. Signature of borrower. The signature of the borrower is placed at the end of the mortgage instrument. If there is more than one owner all are required to sign. In most cases the wife of a farmer will have a joint interest in the property or dowry right and both husband and wife are usually asked to sign the mortgage.

8. Acknowledgment. This refers to the statement by the borrower at the end of a mortgage to the effect that the mortgage was his own free and voluntary act. This acknowledgment is made before a notary public or other officer who is authorized to administer oaths. In some States the mortgage must be either acknowledged or witnessed if it is to be recorded. Generally the acknowledgment must conform to the form set forth in the statutes or law.

Types of Real Estate Mortgages

First and Junior Mortgages.—More than one mortgage may be given on a single property. In that case it is necessary to designate which has priority of claim on the real estate in case of default by the borrower. The priority is usually decided by the sequence in which the mortgages are placed and recorded on the property. If a mortgage is the first one to be placed against a property it is called a first mortgage. Should another mortgage be placed against the same property the latter is called a second mortgage. Any mortgages put on the property after the first mortgage are called junior mortgages. Any one of the mortgages may be foreclosed if the borrower does not live up to the terms of the mortgage. In case a junior mortgage is foreclosed, the prior mortgagees do not thereby lose their rights.

Purchase-Money Mortgages.—The main difference between a purchase-money mortgage and an ordinary mortgage is that under the former the borrower is also the purchaser of the farm while the lender is also the seller. Because of this the purchase-money mortgage as a rule has priority over all earlier claims arising through the purchase-money mortgagor, including mortgages, judgments, and other liens. This distinction arises particularly in States which have homestead-exemption laws. Purchase-money mortgages, because they make it possible for the family to buy a farm and home, are not included in such restrictions even though other encumbrances may be restricted. The basis of this priority lies in the equity and justice of a first lien given to the seller when he parts with the title to his property on an agreement to pay a part of the purchase price by a mortgage. These principles of law clearly stimulate and encourage the sale of farm land to persons who have only limited means.

DEED OF TRUST.—A deed of trust is a conveyance of title from the borrower (called a trustor or grantor) to a third person not the lender (called the grantee or trustee who acts as agent for the lender). In a deed of trust the actual lender may not even be named. The trustee usually has authority to collect interest or principal installments as they mature, to execute assignments of the trust deed, to grant extensions, and to start foreclosure proceedings. The laws of some States authorize foreclosure of a trust deed, by publication or advertisement of the proposed action by the trustee, without court action. Because it is easier to obtain payment of a debt when it is secured by a deed of trust, many lenders prefer this form to the regular mortgage.

CONTRACT FOR SALE OR CONTRACT FOR DEED.—A contract for sale or a contract for deed, sometimes called a bond for title, is an agreement whereby the owner of the property (vendor) agrees to sell a farm to a buyer (vendee) under the terms of a contract. Such terms usually provide that the seller will transfer title to the property to the buyer after the buyer has paid a certain percentage of the purchase price. The contract may also provide that, pending such transfer of title, the buyer will have possession of the farm and pay off part of the purchase price periodically. After he has paid down the stipulated amount (usually about 50 percent) the seller will transfer title to the buyer and take back a mortgage instead. During the lifetime of the contract the seller keeps legal title to the property. Many farm owners will sell a farm on a contract with a smaller down payment because title does not actually pass to the buyer and it is easier to regain possession of the farm if the buyer defaults.

Recording Real Estate Mortgages

Recording a real estate mortgage is done by writing down its principal provisions and otherwise identifying it in a book kept for that purpose in the office of the county clerk or registrar of deeds. A statement at the beginning or on the reverse side of the mortgage mentions the hour and day on which it was recorded and the page number of the book in the county office in which the entry was made. This statement will be signed by the proper county official. The fee charged for recording is usually regulated by law, and is only a few dollars.

Methods of Releasing or Extinguishing Mortgage Loans and Contracts

The usual method of cancelling a mortgage is by paying off the principal of the loan. This is often referred to as a voluntary release, as opposed to the involuntary liquidations which result from default of the borrower.

VOLUNTARY RELEASES.—A voluntary release may be a marginal release or a documentary or formal release. In the case of a marginal release the lender merely writes in a statement in the county record to the effect that he certifies that the "within mortgage" has been fully paid and satisfied, and then signs his name as mortgagee. This statement is certified by the county recorder or clerk.

A documentary or formal release is a paper which the mortgagee signs, certifying that the mortgage described has been fully paid and satisfied. This kind of release is then recorded in the county record

in the same way as the original mortgage. The formal release is commonly used when the lender does not live in or near the county seat in which the mortgage is recorded. But one kind is just as valid as the other and a marginal release is much cheaper because no formal instrument or paper has to be drawn up.

Under certain conditions a partial release may be made. This release is usually in documentary form. The purpose is to release certain land or other property from the security that was offered.

Involuntary Releases.—When the mortgage contains a power of sale if the borrower defaults, the lender or trustee may begin to foreclose on the mortgage by advertising or by publication. In some States the mortgagee may hold a foreclosure sale without going through the courts. In other States even though the mortgage or deed of trust contains such power of sale, the mortgagee or trustee must proceed through court action.

If foreclosure through the courts is not required, the lender or trustee will hire a lawyer to draft a paper known as a "Notice of Foreclosure Sale." This mentions the time and record of recordings, the nature of the default, the amount due on the mortgage; it gives a description of the property, sets a time and place for the sale, and gives the terms and condition of the sale. This notice is signed by the lender or trustee and by the sheriff of the county. It is then advertised or published in a newspaper and appears as often as required by the law.

The property is then sold by the sheriff or trustee, at the time and place mentioned, to the highest bidder. This does not usually give the buyer clear title, but is merely a sheriff's deed or a trustee's certificate of sale. The buyer's title is not absolute because the borrower may still have a period in which to redeem his farm by paying the loan. This period for redemption varies in different States. It may run for a year or more and during this time the borrower still may keep possession of the property.

Some States do not provide for foreclosure by advertisement and publication, but require that mortgages and deeds of trust must be foreclosed by action of a court of equity, which is sometimes called a court of chancery. In ordinary foreclosures before such a court the mortgagee files a bill of complaint or petition which sets forth the facts relating to the mortgage and the nature of the default. Next the borrower is notified and he is given a certain time in which to answer the complaint. If no answer is filed, the court grants a judgment and orders the advertisement and sale of the property. The sheriff or an officer of the court sells it at public sale. The proceeds go towards satisfying the judgment. Any balance is returned to the borrower. If it is not enough, a deficiency judgment may be obtained against the borrower and this may be collected out of any other assets he may have.

Repayment of Mortgages.—When considering the amount of savings needed to pay the principal on a loan it is necessary, of course, to learn as nearly as possible how much the annual principal payments on a debt will be. This depends on the size of the debt and how long a time the farmer has to pay it. Three methods of repayment on a mortgage are commonly in use:

1. No repayments are required until the loan matures. Then the entire principal becomes due and payable. This is usually called a "straight-term mortgage." If a farmer has to borrow $5,000 to buy a farm and his mortgage calls for interest on the loan at 4 percent over 20 years, he will have to pay $200 a year interest and at the end of that time he will have had to save $5,000, unless he is sure to be able to refinance all or a part of that amount at that time. If he wants to know how much he will have to save each year, he will divide the $5,000 by 20. This would be $250 per year. But if he can invest the money each year in the farm or in outside investments and get interest, it will be somewhat less than that because the interest received can be added to the savings. In business, this is called establishing a "sinking fund." If, for example, he can get 4 percent compound interest on his savings, he will need to invest each year only $167.91. (See table 9, p. 66.)

For those who wish to establish a sinking fund the necessary annual savings can be determined from table 9 by multiplying the percentage given in the table (for the number of years and the interest rate) by the amount of the sinking fund desired. For instance, in this example the number of years is 20, the interest rate is 4 percent, and the fund desired is $5,000. By following down column 1 to 20 years and going across the table to the figure opposite 20 in the 4-percent interest column, we find 3.3582 percent. Multiplying $5,000 by this percentage we get $167.91, or the annual savings necessary to accumulate $5,000 in 20 years at 4 percent compound interest.

Suppose now that a farmer wants to accumulate $5,000 in 10 years at 4 percent interest compounded. This would be $5,000×0.083291=$416.46—the amount of annual savings needed per year. If he could get only 3 percent compound interest instead of 4 percent the figure would be $436.16, ($5,000×0.087231).

2. Another method of retiring a loan is to repay a part of the debt once every so often over the period of the loan. These are known as amortized loans and they are of two kinds. In one, often called the Springfield plan, the amount of the periodic repayment of principal is the same each time, but the interest payment declines, and each successive installment is less. An example of interest and principal repayments on such a loan is shown in table 5.

TABLE 5.—*Amortized loan of $1,000 at 4-percent interest, repayable in 20 years (Springfield Plan)*

Payment No.	Annual payment	Interest	Applied on principal	Unpaid principal
				$1,000
1	$90	$40	$50	950
2	88	38	50	900
3	86	36	50	850
(1)				
18	56	6	50	100
19	54	4	50	50
20	52	2	50	

[1] Four to seventeen, inclusive, omitted.

In the standard type of amortization plan both the interest and principal payments vary, but the total installment is always the same. This kind of loan is shown in table 6. Under this plan the farmer knows just what his total payment should be each time an installment is due.

TABLE 6.—*Amortized loan of $1,000 at 4-percent interest, repayable in 20 years (Standard Amortization Plan)*

Payment No.	Annual payment	Interest	Applied on principal	Unpaid principal
1	$73.58	$40.00	$33.58	$966.42
2	73.58	38.66	34.92	931.50
3	73.58	37.26	36.32	895.18
(1)				
18	73.58	8.17	65.41	138.78
19	73.58	5.55	68.03	70.75
20	73.58	2.83	70.75	

[1] Four to seventeen, inclusive, omitted.

3. A third method of repaying a loan that is growing more popular is a variable repayment plan. A farmer pays more principal than called for by an amortization schedule in his good years so that he does not have to pay so much principal in poor or bad years. This is particularly desirable in the case of agricultural credit because the income from a farm varies so much from year to year. Even though a farmer cannot obtain a loan on a variable-repayment basis, he still can protect himself from variations in income by establishing his own reserves in the form of savings. (See p. 56.)

The "term" of a mortgage is the period from the time the loan is made to the time it is to be completely paid off. Real estate mortgages may run for any term but are usually from 5 to 40 years. The shorter the term the larger is the principal repayment required to pay off the mortgage within the time limit. On the other hand, the longer the term of an amortized mortgage the smaller will be the annual principal repayments he must make. But the longer the loan runs the larger will be the total interest paid. This does not make much difference if the money is put into something that is earning more than it costs. A loan of $1,000 at 5 percent for 15 years would require an annual amortization payment of $96.34; for 17 years, $88.70; for 21 years, $78.00; and for 26 years, $69.56. The smaller yearly payment for longer term loans does not necessarily mean that a larger proportion of the total value can be borrowed, for there are likely to be farming hazards in the course of the longer period. But it does point to a general advantage of long-term mortgage credit, with a provision for reducing principal by lump-sum payments.

Sources of Credit

Farmers can get credit to finance the acquisition, operation, and improvement of their farms from both private and governmentally sponsored credit agencies. Private lenders include private individuals,

local merchants and dealers, commercial banks, life insurance companies, and loan associations. Loans from the large national organizations, such as life insurance companies, are usually obtained through local agents. These agents may be bankers, real estate brokers, or others in the community.

Facilities of federally sponsored farm credit agencies are available to farmers in practically every county in the United States. Long-term real estate credit can be obtained from the 12 cooperative Federal land banks through the local national farm loan associations. Application for such loans can be made through the secretary-treasurer of the local national farm loan association. These loans are made to those farmers who can qualify for credit on the usual business basis.

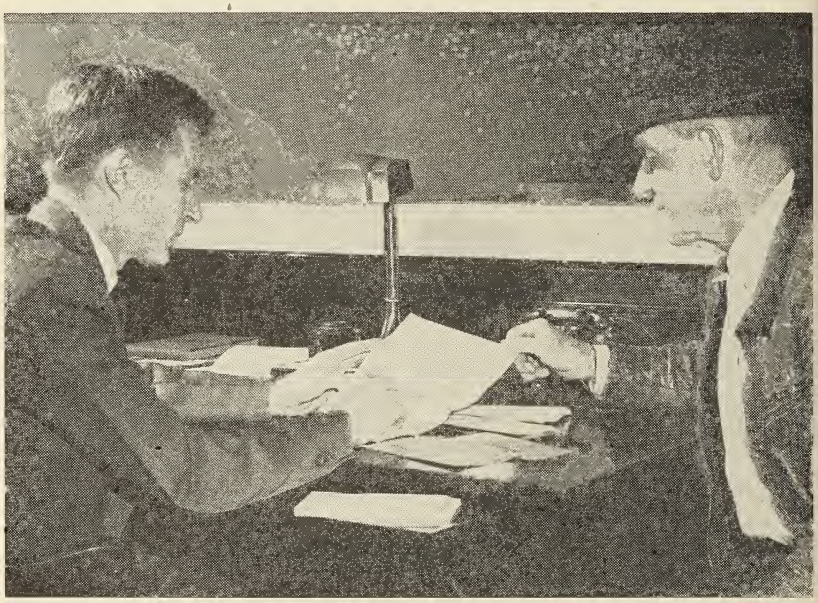

Figure 8.—Farmers consult the county Agricultural Extension Agent regarding sources of credit that are locally available.

Supervised farm real estate loans may also be obtained from the Farmers Home Administration, through their local representative, but these loans are made only to farmers who cannot ordinarily meet the usual terms and conditions of a regular business loan. The Farmers Home Administration can also insure farm real estate loans made by private individuals or other lenders.

Federally sponsored short-term production loans are available through production credit associations. Application is made through the local secretary-treasurer. These cooperative associations obtain their funds by discounting farmers' notes with the Federal intermediate credit banks. These banks may also discount agricultural paper for State and National banks, privately capitalized agricultural and livestock credit corporations, and similar institutions.

Short-term supervised production loans may also be made by the Farmers Home Administration to low-income farmers who are unable to qualify for such credit from other sources.

Both the supervised real estate loans and the production loans made by the Farmers Home Administration are based upon a farm and home plan developed by the borrower in consultation with the agency's local supervisor.

The local county Agricultural Extension Agent can usually give a farmer the name of the person to see if he wants to arrange to get credit from any of these sources and he can describe the general terms and conditions of loans made by the various lenders (fig. 8).

INVESTMENTS OUTSIDE THE FARM

BANK ACCOUNTS

The most common place to put money is in a bank account. These are usually of two kinds—the checking account and the savings account. In a checking account, interest is not paid on the money and lately many banks have made charges for their services in cashing checks and keeping records. These charges may be based on the number of checks written and the number of other transactions made on the bank in relation to the balance in the account. This service is worth a fee, for the bank provides a safe place for money and a check is convenient and can serve both as a personal record and as a receipt. Most banks now are members of the Federal Deposit Insurance Corporation which insures deposits up to $5,000. Some mutual savings banks may not be members of the corporation but may be insured under State agencies.

On a savings account most banks pay a small rate of interest. Generally a depositor must go to the bank if he wants to make withdrawals from a savings account. Saving deposits as well as checking accounts are insured up to $5,000 if the bank is a member of the F. D. I. C. This insurance covers a total of only $5,000 whether a person has money in one or the other kind of account or in both.

U. S. POSTAL SAVINGS

The Postal Savings System was established to encourage thrift and to provide a safe place for the accumulation of savings. Deposits may be made by any person 10 years old or over, at any post office which has the facilities.

No person may have more than one postal savings account. No account will be opened in the name of any corporation, association, society, firm, or partnership. The account may be opened in person, or by a representative, or by mail. Deposits are evidenced by certificates which are issued in denominations of $1, $2, $5, $10, $20, $50, $100, $200, and $500. These certificates cannot be negotiated or transferred. No person is allowed to have more than $2,500 postal savings certificates.

A depositor may make withdrawals of all or a part of his account, at any time, from the post office where the deposits were made. As

a postmaster may not happen to have enough money on hand, it may be necessary at times to give advance notice.

Postal savings deposits earn interest at the rate of 2 percent a year, except in certain States where the rate may be lower. In New Jersey and Mississippi the rate was reduced to 1 percent because an order by the State Commissioner of Banking fixed the rate that is payable on savings deposits. A deposit made during a month begins to draw interest on the first day of the next month, and interest is collectible quarterly. The interest should be collected promptly and redeposited if the depositor wants to compound his money.

The faith of the United States Government is pledged to the payment of deposits and accrued interest in the Postal Savings System so an investment or deposit in this system is as safe as any investment that can be made.

A person may not think of money put in the bank as an investment. He may think of the bank as a convenient "strong box", to put money in and draw it out easily. When a farmer invests money in a bank account or postal savings he knows he can get back the same number of dollars he put in. How does this differ from money that is used to buy a bond? And, how does money invested in bonds differ from money invested in stocks? Differences in these kinds of investments will be taken up as each is considered.

BONDS

Bonds are the written promise of a corporation or Government body to pay a specified sum of money at some future date, together with a certain rate of interest payable quarterly, semi-annually, or annually. This promise may be secured by some form of real estate, machinery, equipment, and other real property. These are often called *mortgage bonds*. But some bonds merely mention the means of reinforcing the promise to pay, or they are secured by the general credit standing of the agency. These bonds are usually known as *debentures*. Included with the promise to pay there is usually an exact statement as to when the bond will be repaid. This is known as the *maturity date*. Some corporations also mention an earlier date after which the bond may be called for redemption if they wish. The earlier date is the "callable date." A bond may mature in 20 years but it may be callable by the agency at any time after 10 years.

There are two other kinds of bonds that an investor should know about. They are "open" and "closed" bonds. An open bond is part of an issue which permits the further issue of bonds with the same kind or degree of claim on the property. A closed bond is an issue in which certain property is pledged as security and no more bonds can be issued with the same kind or degree of claim on the property. An open bond is probably not so safe as a closed bond, since the value of the security back of the open bond may be diluted. If later issues are restricted the security back of all the bonds may be enough to make the bond as safe as a closed bond. If this is true it can usually be learned in advance. But whether the bond is closed or open it still may be unsafe as an investment if the value of the security is low relative to the debt, or if the earnings and income of the corporation are low. To learn about the safety of an investment a farmer has to

look into the value of the security that is back of a bond, and into the earnings of the corporation. Several sources of such information, including ratings, are available from both private and public agencies.

In some cases, corporations issue what are commonly known as income bonds. These bonds are secured in the usual way, but the annual interest payment depends primarily on the earnings of the corporation during the year. They may have a stipulated interest rate and may be cumulative for a limited period. In this respect, they may be somewhat similar to a preferred stock. (See p. 54.)

Government bonds may also be distinguished in general from bonds issued by private business. They may be issued by foreign countries or by some part of our own Government. In the United States, bonds are issued by such units as cities, counties, States, and the Federal Government. Bonds of cities and counties may be classed in a general way as "municipal bonds." Bonds of governments and municipalities are generally secured by the good faith or guarantee of the governmental unit, for there is no higher power to which to appeal.

One of the principal kinds of Federal bonds that farmers buy is United States Savings Bonds. Series C, B, and E bonds are sold at 75 percent of their face value and mature in 10 years. If held to maturity, they pay an average of 2.9 percent interest. Series C and D bonds have been available only to individuals since 1941. Series F bonds are sold at 74 percent of their face value and mature in 12 years. If held to maturity, these bonds yield 2.53 percent interest. Series G bonds are current-income bonds, bearing interest at 2.5 percent a year. They are sold at their face value and are redeemable at par on maturity and below par if redeemed before maturity. Series F and G bonds are available to anyone except to commercial banks who are permitted to buy them only at certain times.

Putting money in a bank account and investing money in bonds are similar in that both promise to repay the same amount of money as that put in. But there are important differences. Bank accounts do not have specific maturity dates and they cannot be bought and sold on the market. When a farmer owns a bond that is transferable or one that can be bought and sold, the money paid for a bond or the money from its later sale may depend upon the market for the bond, rather than upon its face value.

If a bond sells for less than its face value, it sells at a *discount*. If it is bought at a discount the interest return or *yield* will be greater than the rate quoted on the bond. If it sells for more than its face value, it sells at a *premium*, and the yield will be less than the stated interest rate. If a bond is sold at par the yield rate will be the same as the interest rate quoted on the bond. Whether it sells for a premium or at a discount usually depends on the interest rate carried by the bond and the market's judgment as to its safety. If, for instance, a bond is issued while interest rates are relatively high, and then interest rates in general decline, the bond becomes of greater relative value and is usually sold on the market at a premium. On the other hand, if a bond is issued at a low rate of interest and the general rate of interest increases, a bond may be sold at a discount.

If the investor buys a bond and has to sell it before it is called, or before it matures, he may get more or less money than he paid for it. Usually, as a bond approaches maturity its market value and its face

value come closer and closer together. This is because the issuing agency guarantees to pay the owner its face value on maturity. If it fails to make good its guarantee then it could be placed in receivership.

STOCKS

A person who buys and owns stock in a company becomes a part owner of the business. In no sense is he a creditor or a lender of money as in the case of a bond holder. Shares of stock represent a person's right to share in the profits and any residual assets if the business should be liquidated. If the business fails, his stocks may also become worthless. Furthermore, they represent a responsibility for sharing in the management of a business. The value of stock as an investment, then, depends primarily on the possibilities of future profits or losses.

But this is not all, for the price of the stock at the time it is bought may *already* reflect the expectation of either profits or losses, and the usual dividend rate must be considered in relation to the price paid for the stock.

Let us assume, for example, that a certain stock has regularly paid an annual dividend of $5 per share for many years, and that everything points to a continuation of this rate of dividend. If an investor paid $150 per share, his rate of return would be 3.3 percent. On the other hand, if he had to pay only $75, his rate of return would be 6.7 percent.

Stocks are not like bonds that have a stated maturity date. Under most conditions the company does not agree to redeem the stock at a certain value. Stocks may have a par value—that is, a value stated on the face of the stock; but there is generally no agreement and no liability on the company to ever pay that face value. The number of shares of stock also indicate what share of the dividends the holder is entitled to receive or what share of the residual assets he is entitled to in case the business should be liquidated. It also indicates a share in the ownership of the business and how many votes the owner has at stockholders' meetings where they decide on business policies. As par value may have little or no influence on the value of the stock, many businesses issue stock without a par value. They merely issue so many shares of stock. It makes little difference to an investor whether the stock shows a par value or not. So he should not be "taken in" by the fact that the market value may be more or less than the par value. Stock that sells for $6 per share when the par value is $10 is not necessarily any better or any poorer investment than one which sells for $12 or $14 per share with a par value at $10.

There are classes of stocks, though, which should be distinguished, for some carry certain rights and privileges as well as obligations for the stockholders that are not carried by others. "Common" stock is a term that may be applied to the stock issued by a particular business which issues no other type of stock. The stockholders own the entire business and there is no difference between one share of stock and another. But sometimes the term is used to mark one kind of stock as different from several other kinds of stock issued by the same business. The term "common" stock here differentiates it from other stock usually called "preferred." If a business has both preferred

and common stock outstanding, the holder of common stock may not be entitled to any dividends out of earnings until the rights of both the bondholders and the preferred stockholders have been satisfied.

A designation of preference (like "preferred stock," "class A stock," "guaranteed stock") indicates that the holder usually has certain preference over the holders of ordinary or common stock in the distribution of profits in the form of dividends. Because of this privilege the amount of dividends payable are usually limited, such as 5 or 6 percent of the par value; if they are not paid one year they may accumulate and become payable the next year. Because of preferential dividends and other privileges granted preferred stockholders, such stock paying the same dividend as common stock often sells at a higher price. Further distinctions may be made in the rights to a voice in management or in the rights of the corporation or stockholder when the stock is redeemed. In some cases provisions are included in preferred stock which entitles the holder to the par value of the stock or par value plus a premium when the stock is redeemed. If such a statement is not included and in the absence of contrary provisions in the contract or charter, it can be assumed that the common and preferred stockholders would be treated alike in case of liquidation or redemption.

How to Check on Safety of Bonds and Stocks

There are many sources of information, both public and private, on the business characteristics of corporations. Perhaps the best Government source is the Securities and Exchange Commission. It publishes reports on the assets, liabilities, and the earnings of many large corporations and industries. An investor can get this information regarding many concerns by writing to the Commissioner. There is a small charge for copying the records.

Several private services give information on such items as the history of the companies, the kind of business they carry on, where the business is located, who manages the business, the type and amount of securities outstanding, the assets and liabilities, the history of earnings, dividend payments, reserve accounts, and other items that investors may want to know. Many of these concerns also summarize the important data, give credit ratings, and they rate the bonds. The bonds, for instance, are rated on such things as the margin of protection back of the bond, the adequacy of net earnings to pay interest, the probability of adequate future earnings, the degree of assurance that other terms of the bond will be complied with, and the possible likelihood of default. One of the private bond-rating services, for example, designates the highest grade bonds as Aaa, with the degree of quality decreasing through the following ratings Aa, A, Baa, Ba, B, Caa, Ca, and C. Bonds rated as C are considered highly speculative. For a C bond the assurance of interest payment, payment of principal, and maintenance of the contract may be small or the bond may actually be in default.

The local banker may subscribe to one or more of these services, for they often give a good check on the reliability of security investments. As bankers invest large amount of funds in securities, they are usually well acquainted with the better class of stocks and bonds.

Furthermore, bankers accept bonds and stocks as security for loans to private customers. In deciding on the amount of security needed for such loans, a banker must appraise the investment quality of stocks and bonds. Such a banker has investment experience and can give good advice. Some larger city libraries and the libraries of educational institutions subscribe to private rating services.

RESERVES IN FARMING

Farming by its very nature is subject to many risks. So farmers, like other businessmen, must have reserves to meet unexpected expenses and conditions. For example, a farmer who has borrowed money to carry on his business has contracted to pay interest on that debt each year. If the mortgage is amortized, he will not only have to meet the interest but also partial payments on the principal.

Suppose the farmer runs into a few years of drought, or his crop is wiped out by insects or rust, or prices are low, or sickness in the family makes it impossible to earn the necessary income. If he has no reserves to draw on, the lender can probably start foreclosure proceedings and finally take his farm. A farmer must try to have money available for these unexpected conditions.

If the reserve is to be effective, it must be in such a form that the farmer can get the cash when he needs it. Holding cash, or money in demand or savings deposits in a bank, or money in postal savings, is like that. Within a few hours or days he can get the cash he has put into these accounts. But the yearly return or interest from such accounts is small. Bank deposits pay little interest, or perhaps none at all, and postal savings pay no more than 2 percent. If the money were invested in bonds, stocks, or in property (including the farm and equipment) it might earn from 3 percent up. But could the farmer get his money out when he needs it and if he gets it would he have to take a loss on his investment? There are two ways in which money can be obtained from this kind of investment. The first is to sell the bonds, stocks, or property, and the second is to borrow the money, using what he holds as security.

Farmers are most likely to need reserves when prices and incomes are low. This is likely to be a time when property prices are lowest, too. Selling property then to get money is likely to mean losses. This is particularly true if the property is in the form of real estate, machinery, livestock, etc. It is equally true of stocks and other securities because business in general is likely to be bad, dividends and other returns low, and prices off. It may also be true of bonds if they are sold before maturity. For even though the bonds may require repayment of a given number of dollars, the security back of them may have declined in value and there may be some doubts as to the ability of companies or businesses in general to meet their interest and other obligations. A widespread recession may also cause a decreased demand for investments in general, resulting in an over-all decline in bond prices regardless of the ability of any particular business to meet its obligations.

Sometimes investments can be made which combine several purposes. The purchase of a paid-up life insurance policy may meet

several needs of a farmer. It may provide protection for his family in case of premature death; but, just as important, it may provide him with a good investment, in times of good income, that will decrease his fixed expenses in times of poor income. It will also provide savings on which he can borrow in times of distress. The various types of life insurance are discussed on page 62.

From the standpoint of a reserve, the quality and term of the security are important. High-quality, short-term bonds, for instance, are less likely to depreciate under adverse conditions than lower-

Figure 9.—Thrift is basic to financial success on a farm. United States savings bonds are a desirable form of reserve in farming.

grade or longer term bonds, therefore they are more readily redeemed, may be sold at a higher price, and are more acceptable as collateral (fig. 9). Usually lenders will not lend more than 50 or 60 percent of the current value of a good private bond but may lend considerably more on negotiable Government bonds. Farmers who use their money to pay off their debts not only increase their equity, which means they have more borrowing power later, but they may also reduce their annual payments of interest and principal. This reduces the need for reserves. Unless the debt is repaid completely, the annual interest and principal repayments may not be made smaller, and the refinancing may be expensive. Unless a farmer has built up considerable equity in his property or has considerable amounts of other securities, it is usually desirable to have a sizable reserve in cash, or on deposit in banks, or in postal savings.

The kind of enterprises on a farm affects the amount of reserves that should be kept. The greater the risks of the type of farming a man is doing the larger the reserve should be. Wheat farming, for example, is recognized as a high-risk business in many areas. Wheat growers in the main wheat belts grow little else. If the crop is lost from drought, insects, disease, hail, fire, or wind, the farmer's only income from his farm is lost that year. Even when he harvests a bumper crop, if the price is so low it doesn't cover his costs there is no income for the family living and to pay debts. Wheat farmers know that they are likely to lose crops or get extremely small yields 2 or 3 times out of every 5 or 10 years. So sizable reserves are necessary. In less arid areas where droughts only reduce the wheat yields, plenty of feed is often left. These farmers can switch from selling the grain to feeding livestock or turn to other ways of using it. So perhaps they can afford to have much smaller reserves. This is also true of such types of farming as dairying in which income from farm sales is received regularly throughout the year.

The amount of fixed expenses is also important in relation to the amount of reserves. These are the expenses which have to be met regardless of conditions. A farmer who has large debts that must be paid needs larger reserves than a farmer who has little or no debt. A cash renter needs to have a larger reserve than a share renter; a large farm that has a high value per acre should carry a larger reserve than a smaller, cheaper farm because its taxes and other fixed expenses are likely to be higher. So it is well to figure out what farm expenses will have to be met in bad years and where the money is coming from. Not all of the needed reserve can be accumulated in a single year. Often it must be built out of the income from several years. If a farmer decides how much of a reserve is necessary he can figure out how much must be set aside each year to have the necessary amount later. (See p. 59.)

INSURANCE FOR THE FARM

The seriousness of some risks of farming carried by a farmer can be considerably reduced by insurance. When a farmer buys insurance he is merely contributing to a common reserve out of which losses are paid (but it is still desirable for him to have reserves of his own). Some risks can be predicted fairly well when large numbers of farmers are considered, whereas risks of an individual farmer cannot be foretold very well. For instance, it is known that, in general, fire losses on a large number of farm buildings are about the same year after year, and if a certain charge, or premium, is paid by enough farmers it will be enough to cover losses from fire and pay the cost of operating the insurance business. Many farmers have banded together in farmers' mutual fire insurance companies. Other insurance policies are offered against such other risks as windstorm and hail. Recently the Government has insured a few crops on a limited basis against losses in yield below the individual farm average.

When a farmer buys insurance against such risks as fire and windstorm he recognizes them as part of his farming expenses. He does not figure his net income until these expenses and others have been subtracted from his gross income. Risks of loss from low prices,

from farm accidents, and many other causes, which are "self-insured" by means of reserves are usually not looked upon as farm costs, although the risks may be just as hazardous to the operations of the farm as the loss from a bad fire against which no insurance is carried. The cost of a reserve against uninsurable risks is just as much a farm cost or expense as money paid to an insurance company for insurable risks, and should be so treated. True net income for the operation of a farm should not be calculated until such costs have been subtracted.

Reserves against losses ordinarily cannot be built up in a single year of farming. They are accumulated over several years. Larger amounts should be set aside in good years. Take a farmer who wants to set up a reserve to meet certain fixed expenses during years of low income. On the basis of his past experience he might figure that he should have a reserve of $1,000, so in bad years he can pay his taxes, make payments on his debts, and have money to buy his seed and fertilizer for the next year's operation. He knows from past experience that he needs such a reserve about once out of every 5 years.

How much would he have to put away each year for 4 years to have $1,000 saved up by the 5th year? Dividing $1,000 by 4, he finds he would have to put aside $250 each year, by rough calculation. But suppose he can put the money into an investment that will pay 4 percent interest compounded annually. An investment of $250 each year for 4 years compounded annually would amount to $1,061.62. If he needed only $1,000 he would not have to put away $250 each year but only $235.50. The difference in these figures is almost too small to justify the effort if the reserve was to be as low as $1,000, the time as short as 4 years, and there is little chance to invest $250 per year. But, where the farming business is large and where reserves need to be correspondingly increased it may be desirable to use the accumulating effects of compound interest. Table 7 shows the percentage of the reserve which must be set aside regularly and invested at compound interest if the desired amount is to be accumulated within a given number of periods.

TABLE 7.—*Percentage of reserve needed to be invested annually*

Years	Interest rate (percent)					
	1	2	3	4	5	6
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0
2	49. 8	49. 5	49. 3	49. 0	48. 8	48. 5
3	33. 0	32. 7	32. 4	32. 0	31. 7	31. 4
4	24. 6	24. 3	23. 9	23. 5	23. 2	22. 9
5	19. 6	19. 2	18. 8	18. 5	18. 1	17. 7
6	16. 3	15. 9	15. 5	15. 1	14. 7	14. 3
7	13. 9	13. 5	13. 1	12. 7	12. 3	11. 9
8	12. 1	11. 7	11. 2	10. 9	10. 5	10. 1
9	10. 7	10. 3	9. 8	9. 4	9. 1	8. 7
10	9. 6	9. 1	8. 7	8. 3	8. 0	7. 6

Using the previous example and following down the first column to the fourth year of table 7 and across to the percentage under the interest rate of 4 percent we find a figure of 23.5 percent. Multiplying the amount of the reserve ($1,000) by this percentage gives $235 as the annual payment needed to accumulate $1,000 in 4 years at 4 percent interest.

Farmers may think that it would be foolish to build up a reserve at the same time they are paying off a debt. But while it is usually good policy to pay off a debt as fast as possible, and to make extra payments in years of good income, a farmer may run up against a bad year and have to borrow again on the increased equity. Refinancing or adding a new debt often means considerable expense for new papers have to be made out. If the debt is secured by real estate or chattels, there will be expenses for recording, bringing abstracts up to date, possible releases of old mortgages, etc. Such expenses may be as much as $100 or more.

If a mortgage is amortized, with each payment covering interest and partial payment of the principal, any payment that is larger than called for in the contract may only shorten the time over which payments are to be made. Even though a farmer makes large payments during good years they do not necessarily relieve him of making regular payments in bad years. Some lenders now provide in their loan contracts that farmers may pay into a separate fund in good years and draw on that money in bad years. Interest is often paid on the fund at the same rate as carried by the mortgage.

The Federal land banks have such an arrangement. As they pay the same interest on such advanced payments as the mortgage carries, this fund is a desirable reserve against possible delinquencies. The fund can be used only to pay on that particular debt. But if the farmer collects his own reserve it can be used to meet any unexpected expenses. Some other lenders, such as insurance companies and banks, also provide for variable debt repayments. They recognize that the income from farming is naturally uncertain and that there are bound to be times when money to pay interest and principal on debts will be short. Although it is desirable for farmers to obtain a loan contract which permits variable repayments, it is really the farmer's responsibility to have funds available to meet payments when they come due.

FIRE INSURANCE

Fire is the principal risk that is insured against. Most fire insurance on farm buildings is written by farmers' mutual fire insurance companies although some is written by stock companies, particularly in the South. Mutual insurance companies, as cooperatives, are owned by their policyholders. So any excess charges on insurance may be returned to the member in the form of reduced assessments on reinsurance, or as dividends at the end of the contract period. Stock companies, on the other hand, are owned by the stockholders who may or may not also be the policyholders.

Most stock and general-writing mutual companies charge the same rate on similar property, but the premium of the mutual company may be reduced when the policy is renewed, because of dividend

credit. The rates charged are usually those calculated by State rating bureaus supported by the companies. The premium for a 3-year policy, payable in advance, is usually 2½ times the annual rate, while the premium on a 5-year policy is usually 4 times the annual rate. Policies of farmers' mutual associations, which usually operate under separate legislation, are generally for 5 years. A more or less standard policy is used by all stock and many mutual companies in about 40 States.

WINDSTORM, HAIL, AND OTHER COVERAGE

Insurance against windstorm and hail is written by many fire insurance companies usually as agents for State-wide windstorm and hail companies. On farm properties windstorm and hail insurance are separate policies from those for fire. On city property they are more often endorsements or "riders" on the fire insurance policy. Hail insurance on crops will be a separate policy from hail insurance on buildings. Policies issued against these hazards are also being more and more standardized but not to the same extent as fire insurance policies.

Insurance against fire, hail, and windstorm losses are generally paid in full up to the amount specified on the face of the policy. Indemnities (losses for which insurance companies are liable) may never be more than that, but they may be less in case of partial loss or if the loss as figured by an adjustor is less than that claimed. The insured party cannot collect from more than one company on the same loss except on what is called a pro rata basis. One insurance company must be told if another policy covers the same risks; otherwise it might be held that neither policy is good.

Other things may also cancel or reduce the intended effects of an insurance policy. The most important of these are: (1) Not having an insurable interest (the insured must stand to suffer as a result of the loss), (2) moving personal property from the place stated in the policy, (3) not reporting a loss within the time limit mentioned in the policy, and (4) increasing the hazard by carelessness or otherwise.

AUTOMOBILE INSURANCE

The owner of an automobile or motortruck is liable for injury to the person or for damage to the property of others resulting from accidents for which he is responsible. Insurance for injury to another person is referred to as coverage for bodily injury. Insurance for damage to property of another is called property damage insurance. Many States have passed laws which require an owner to be financially responsible for automobile accidents up to a certain amount including either the first or, more often, succeeding accidents involving injury or property damage amounting to more than a specified amount ($25 or $50). One way of meeting this responsibility is to carry liability insurance.

Insurance against bodily injury and property damage (liability insurance) is usually covered by one policy. The common amount of bodily injury liability insurance is the 5/10 limit. This means the insurance protects you up to $5,000 against the liability for the injury

or death of another person or up to $10,000 against the liability for injury or death of two or more persons in one accident. An owner can take out insurance providing for a higher maximum. The usual maximum coverage against property damage is $5,000. When such insurance is obtained in connection with 5/10 bodily injury coverage the combination is called "5/10/5" policy, the last "5" referring to the property damage of the coverage.

It should be noted here that property damage insurance covers an owner's liability for damage to someone else's property. It does not include damage to his own car. If the owner wants that insurance, he must take out "collision" insurance. To insure against full damage to the owner's car is regarded by many as being fairly expensive. Cheaper collision insurance is provided in a policy which pays only after the first $25 of damage is paid by the owner. If the damage to an owner's car is less than $25, for instance, no insurance would be paid. If the accident involves damages of $100, the insured would be entitled to an insurance payment of $75. Still cheaper collision insurance is available with a $50 or a $100 deductible clause. The coverage on some collision insurance policies is on a percentage basis. The insured pays a certain percentage of the damage up to a certain maximum and the insurance company pays the rest, or all above the specified amount.

Automobile insurance can be obtained to cover the owner's loss from "fire and theft." These risks may be included along with insurance against damage to the vehicle from windstorm, tornadoes, hail, floods, glass breakage, etc. Such a policy in which all the other "own car" coverages are included is known as a "comprehensive" policy. This coverage is separate from the coverage on collisions.

LIFE INSURANCE FOR THE FARMER

One of a farmer's main needs is to provide for his wife and family if he should die. A young farmer starting out in life seldom has enough to be sure that his wife and children would not suffer, or would not be entirely dependent upon someone else. He is likely to have debts which could be met only by liquidating the farm business, leaving nothing for his wife and children. To meet the needs for life insurance, companies provide several types of policies.[10]

TYPES OF LIFE INSURANCE

Term Insurance

The simplest type of life insurance, and the cheapest, is called "term insurance," because it insures a person only for a given term of years; say, 1, 5, 10, or 20 years. Such a policy is "pure insurance" in that it has no investment feature or no cash value at the end of the term. Premiums or payments increase each time the term insurance is renewed as the age of the farmer also increases. There are also term policies such as "term to age 65" which are more like ordinary life insurance.

[10] See Botts, R. R., Life Insurance for the Farm Family. U. S. Dept. Agr. Misc. Pub. 621, 49 pp., 1947.

Ordinary or Whole Life Insurance

In ordinary or whole life insurance the farmer pays the same premiums as long as he lives, and the insurance is in effect throughout his life. Premiums are averaged out over the probable life span so that equal payments are due each year. Premiums paid in earlier years are usually higher than the probable costs so that this type of policy has a cash value after it is a few years old, so this policy combines a protection feature and a small investment feature.

Limited Payment Policy

A limited-payment life policy is similar to ordinary or whole life insurance except that the period over which premiums are paid is limited, instead of extending over the lifetime. The limitations may be for 20 years, 30 years, or any other term. The policy is then commonly referred to as "20 pay life" or "30 pay life policy." The investment features of such contracts are more important than in the ordinary life policy. The premiums are high enough to pay for the insurance and also to build up a cash surrender value, which is enough to carry the insurance from the end of the premium-paying period until the death of the policyholder. Of course the face of the policy is payable at death just as if the insured person had an ordinary life policy.

Endowment Policy

In an endowment policy the premium charged is enough to carry the insurance and to build up a cash value equal to the face of the policy by the end of the term. A $5,000 endowment policy for 20 years would be worth $5,000 at the end of that period, if a man lives, and would be worth $5,000 to his beneficiary if he dies in the meantime. At the end of the term the insured could take the cash and buy a paid-up life insurance policy or an annuity. An annuity merely means an annual income. If a life annuity is bought, the buyer would be guaranteed a certain monthly or regular income the rest of his life.

Thus life insurance policies differ primarily as to the term over which premiums are paid and as to the amount of premiums which goes into savings. As savings in a policy increase, the amount of pure insurance declines because the insurance company is liable only for the face amount of the policy. Thus in a $5,000 endowment policy it may be found that after 10 years of a 20-year term the cash surrender value has increased to $2,000 or more. Under these conditions the amount of pure insurance is only $3,000.

HOW MUCH INSURANCE SHOULD BE CARRIED?

The amount of insurance of various kinds a farmer should have depends upon many things: (1) The farmer's income, or his ability to carry insurance and at the same time provide for other necessary farm and family expenses; (2) the kind of risks against which insurance is needed; (3) the amount of reserves which the farmer already has to meet unexpected losses or expenses. Each of these carries a different weight for every farmer and each carries a different weight for the

same farmer at different times. Each farmer needs to study these points for himself, getting the advice of competent insurance people, but every now and then he should go over his whole insurance plan again.

In connection with decisions on the kind and amount of insurance, a farmer should always remember the general principle that insurance does not reduce the loss; it merely spreads the cost over many individuals. If there is a loss, the insurance helps that individual to carry the burden more easily and keeps the loss from being more than he can bear.

Of course a farmer can become "insurance poor." No one questions a farmer's need for insurance or that money spent for life insurance is important to insure an income to his wife and children or to pay off the farm debt if he should die. But it is clearly not good financial management to carry so much insurance that he can't meet the medical and dental needs of his family or make the payments on his mortgage.

It does not seem necessary to insure against the smaller risks that a farmer can carry himself. The ability to carry risks, of course, relates both to his prospects of income and to the size of his reserves. Most farmers are likely at some time to be unable to work for a few days, or for a week or more, because of illness or accidents. If this would not mean extremely high doctor bills, or the loss of a crop or other serious financial loss, it could probably be taken care of out of his income or his savings. The primary place for insurance is especially to reduce the burden of potential catastrophic losses such as those from a bad fire, loss of life, permanent disability, or liability to others for the consequence of a serious accident.

In many cases properly timed investments in the farm will be far more profitable than other kinds of savings. But a farmer should remember that he can borrow from his insurance company the full amount of the cash surrender value of his life insurance policy, and usually at from 4 to 6 percent a year. Or he can usually borrow from a bank or other lender with his insurance policy assigned as security, so such savings become reserves which are readily available.

TABLE 8.—*Amount (principal and interest) $1 accumulates at compound interest over a given number of periods*

Number of periods [1]	Interest rate											
	½ percent	1 percent	1½ percent	2 percent	2½ percent	3 percent	3½ percent	4 percent	4½ percent	5 percent	5½ percent	6 percent
1	1.0050000	1.0100000	1.0150000	1.0200000	1.0250000	1.0300000	1.0350000	1.0400000	1.0450000	1.0500000	1.0550000	1.0600000
2	1.0100250	1.0201000	1.0302250	1.0404000	1.0506250	1.0609000	1.0712250	1.0816000	1.0920250	1.1025000	1.1130250	1.1236000
3	1.0150751	1.0303010	1.0456784	1.0612080	1.0768906	1.0927270	1.1087179	1.1248640	1.1411661	1.1576250	1.1742414	1.1910160
4	1.0201505	1.0406040	1.0613636	1.0824322	1.1038129	1.1255088	1.1475230	1.1698586	1.1925186	1.2155063	1.2388247	1.2624770
5	1.0252512	1.0510100	1.0772840	1.1040808	1.1314082	1.1592741	1.1876863	1.2166529	1.2461819	1.2762816	1.3069600	1.3382256
6	1.0303775	1.0615202	1.0934433	1.1261624	1.1596934	1.1940523	1.2292553	1.2653190	1.3022601	1.3400956	1.3788428	1.4185191
7	1.0355294	1.0721354	1.1098449	1.1486857	1.1886858	1.2298739	1.2722793	1.3159318	1.3608618	1.4071004	1.4546792	1.5036303
8	1.0407070	1.0828567	1.1264926	1.1716594	1.2184029	1.2667701	1.3168090	1.3685691	1.4221006	1.4774554	1.5346865	1.5938481
9	1.0459106	1.0936853	1.1433900	1.1950926	1.2488630	1.3047732	1.3628974	1.4233118	1.4860951	1.5513282	1.6190943	1.6894790
10	1.0511401	1.1046221	1.1605108	1.2189944	1.2800845	1.3439164	1.4105988	1.4802443	1.5529694	1.6288946	1.7081445	1.7908477
11	1.0563958	1.1156684	1.1779489	1.2433743	1.3120867	1.3842339	1.4599697	1.5394541	1.6228531	1.7103394	1.8020924	1.8982986
12	1.0616778	1.1268250	1.1956182	1.2682418	1.3448888	1.4257609	1.5110687	1.6010322	1.6958814	1.7958563	1.9012075	2.0121965
13	1.0669862	1.1380933	1.2135524	1.2936066	1.3785110	1.4685337	1.5639561	1.6650735	1.7721961	1.8856491	2.0057739	2.1329283
14	1.0723211	1.1494742	1.2317557	1.3194788	1.4129738	1.5125897	1.6186945	1.7316765	1.8519449	1.9799316	2.1160915	2.2609040
15	1.0776827	1.1609690	1.2502321	1.3458683	1.4482982	1.5579674	1.6753488	1.8009435	1.9352824	2.0789282	2.2324765	2.3965582
16	1.0830712	1.1725786	1.2689856	1.3727857	1.4845056	1.6047064	1.7339860	1.8729813	2.0223702	2.1828746	2.3552627	2.5403517
17	1.0884865	1.1843044	1.2880203	1.4002414	1.5216183	1.6528476	1.7946756	1.9479005	2.1133768	2.2920183	2.4818022	2.6927728
18	1.0939289	1.1961475	1.3073406	1.4282463	1.5596587	1.7024331	1.8574892	2.0258165	2.2084788	2.4066192	2.6214663	2.8543392
19	1.0993986	1.2081090	1.3269508	1.4568112	1.5986502	1.7535061	1.9225013	2.1068492	2.3078603	2.5269502	2.7656469	3.0255995
20	1.1048956	1.2201900	1.3468550	1.4859474	1.6386164	1.8061112	1.9897889	2.1911231	2.4117140	2.6532977	2.9177575	3.2071355
21	1.1104201	1.2323919	1.3670578	1.5156663	1.6795819	1.8602946	2.0594315	2.2787681	2.5202412	2.7859626	3.0782342	3.3995636
22	1.1159722	1.2447159	1.3875637	1.5459797	1.7215714	1.9161034	2.1315116	2.3699188	2.6336520	2.9252607	3.2475370	3.6035374
23	1.1215520	1.2571630	1.4083772	1.5768993	1.7646107	1.9735865	2.2061145	2.4647155	2.7521664	3.0715238	3.4261516	3.8197497
24	1.1271598	1.2697346	1.4295028	1.6084373	1.8087260	2.0327941	2.2833285	2.5633042	2.8760138	3.2250999	3.6145899	4.0489346
25	1.1327956	1.2824320	1.4509454	1.6406060	1.8539441	2.0937779	2.3632450	2.6658363	3.0054345	3.3863549	3.8133924	4.2918707
26	1.1384596	1.2952563	1.4727095	1.6734181	1.9002927	2.1565913	2.4459586	2.7724698	3.1406790	3.5556727	4.0231289	4.5493830
27	1.1441519	1.3082089	1.4948002	1.7068865	1.9478000	2.2212890	2.5315671	2.8833686	3.2820096	3.7334563	4.2440010	4.8223459
28	1.1498726	1.3212910	1.5172222	1.7410242	1.9964950	2.2879277	2.6201720	2.9987033	3.4297000	3.9201291	4.4778431	5.1116867
29	1.1556220	1.3345039	1.5399805	1.7758447	2.0464074	2.3565655	2.7118780	3.1186515	3.5840365	4.1161356	4.7241244	5.4183879
30	1.1614001	1.3478489	1.5630802	1.8113616	2.0975676	2.4272625	2.8067037	3.2433975	3.7453181	4.3219424	4.9839513	5.7434912
31	1.1672071	1.3613274	1.5865264	1.8475888	2.1500068	2.5000804	2.9050315	3.3731334	3.9138575	4.5380395	5.2580686	6.0881006
32	1.1730431	1.3749407	1.6103243	1.8845406	2.2037569	2.5750828	3.0067076	3.5080588	4.0899810	4.7649415	5.5472624	6.4533867
33	1.1789083	1.3886901	1.6344792	1.9222314	2.2588509	2.6523352	3.1119424	3.6483811	4.2740302	5.0031885	5.8523618	6.8405899
34	1.1848029	1.4025770	1.6589964	1.9606760	2.3153221	2.7319053	3.2208603	3.7943163	4.4663615	5.2533480	6.1742417	7.2510253
35	1.1907269	1.4166028	1.6838813	1.9998896	2.3732052	2.8138625	3.3335905	3.9460890	4.6673478	5.5160154	6.5138250	7.6860868
36	1.1966805	1.4307688	1.7091395	2.0398873	2.4325353	2.8982783	3.4502661	4.1039326	4.8773785	5.7918161	6.8720854	8.1472520
37	1.2026639	1.4450765	1.7347766	2.0806851	2.4933387	2.9852267	3.5710254	4.2680899	5.0968605	6.0814069	7.2500501	8.6360871
38	1.2086773	1.4595272	1.7607983	2.1222988	2.5556824	3.0747835	3.6960113	4.4388135	5.3262492	6.3854773	7.6488028	9.1542524
39	1.2147206	1.4741225	1.7872103	2.1647448	2.6195745	3.1670270	3.8253717	4.6163660	5.5658991	6.7047512	8.0694870	9.7035075
40	1.2207942	1.4888637	1.8140184	2.2080397	2.6850638	3.2620378	3.9592597	4.8010206	5.8163645	7.0399887	8.5133088	10.2857179

[1] May represent such periods as: Annual, semiannual, quarterly, or monthly. Interest rate is per period monthly if the interest rate is ½ percent, 1 percent, etc., per month If annual, the interest rate shown is per annum.

TABLE 9.—*Percentage of sinking fund required to be saved annually to accumulate such fund in a given number of periods at various interest rates*

Number of periods [1]	Interest rate											
	½ percent	1 percent	1½ percent	2 percent	2½ percent	3 percent	3½ percent	4 percent	4½ percent	5 percent	5½ percent	6 percent
1	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000
2	49.87531	49.75124	49.62779	49.50495	49.38272	49.26108	49.14005	49.01961	48.89976	48.78049	48.66180	48.54369
3	33.16722	33.00221	32.83830	32.67547	32.51372	32.35304	32.19342	32.03485	31.87734	31.72086	31.56541	31.41098
4	24.81328	24.62811	24.44448	24.26238	24.08179	23.90271	23.72511	23.54901	23.37437	23.20118	23.02945	22.85915
5	19.80100	19.60398	19.40893	19.21584	19.02469	18.83546	18.64814	18.46271	18.27916	18.09748	17.91764	17.73964
6	16.45955	16.25484	16.05252	15.85258	15.65500	15.45975	15.26682	15.07619	14.88784	14.70175	14.51790	14.33626
7	14.07285	13.86283	13.65562	13.45120	13.24954	13.05064	12.85445	12.66096	12.47015	12.28198	12.09644	11.91350
8	12.28289	12.06903	11.85840	11.65098	11.44674	11.24564	11.04767	10.85278	10.66097	10.47218	10.28640	10.10359
9	10.89074	10.67404	10.46098	10.25154	10.04569	9.84339	9.64460	9.44930	9.25745	9.06901	8.88395	8.70222
10	9.77706	9.55821	9.34342	9.13265	8.92588	8.72305	8.52414	8.32909	8.13788	7.95046	7.76678	7.58680
11	8.86590	8.64541	8.42938	8.21779	8.01060	7.80775	7.60920	7.41490	7.22482	7.03889	6.85707	6.67929
12	8.10664	7.88488	7.66800	7.45596	7.24871	7.04621	6.84840	6.65522	6.46662	6.28254	6.10292	5.92770
13	7.46122	7.24148	7.02404	6.81184	6.60483	6.40295	6.20616	6.01437	5.82754	5.64558	5.46843	5.29601
14	6.91361	6.69012	6.47233	6.26020	6.05365	5.85263	5.65707	5.46690	5.28203	5.10240	4.92791	4.75849
15	6.43644	6.21238	5.99444	5.78255	5.57665	5.37666	5.18251	4.99411	4.81138	4.63423	4.46256	4.29628
16	6.01894	5.79446	5.57651	5.36501	5.15990	4.96109	4.76848	4.58200	4.40154	4.22699	4.05825	3.89521
17	5.65058	5.42581	5.20797	4.99698	4.79278	4.59525	4.40431	4.21985	4.04176	3.86991	3.70420	3.54448
18	5.32317	5.09820	4.88058	4.67021	4.46701	4.27087	4.08168	3.89933	3.72369	3.55462	3.39199	3.23565
19	5.03025	4.80518	4.58785	4.37818	4.17606	3.98139	3.79403	3.61386	3.44073	3.27450	3.11501	2.96209
20	4.76664	4.54153	4.32457	4.11567	3.91471	3.72157	3.53611	3.35818	3.18761	3.02426	2.86793	2.71846
21	4.52816	4.30308	4.08655	3.87848	3.67873	3.48718	3.30366	3.12801	2.96006	2.79961	2.64648	2.50046
22	4.31138	4.08637	3.87033	3.66314	3.46466	3.27474	3.09321	2.91988	2.75457	2.59705	2.44712	2.30456
23	4.11346	3.88858	3.67308	3.46681	3.26964	3.08139	2.90188	2.73091	2.56825	2.41368	2.26696	2.12785
24	3.93206	3.70735	3.49241	3.28711	3.09128	2.90474	2.72728	2.55868	2.39870	2.24709	2.10358	1.96790
25	3.76519	3.54068	3.32635	3.12204	2.92759	2.74279	2.56740	2.40120	2.24390	2.09525	1.95494	1.82267
26	3.61116	3.38689	3.17320	2.96992	2.77687	2.59383	2.42054	2.25674	2.10214	1.95643	1.81931	1.69044
27	3.46856	3.24455	3.03153	2.82931	2.63769	2.45642	2.28524	2.12385	1.97195	1.82919	1.69523	1.56972
28	3.33617	3.11244	2.90011	2.69897	2.50879	2.32932	2.16027	2.00130	1.85208	1.71225	1.58144	1.45926
29	3.21291	2.98950	2.77788	2.57784	2.38913	2.21147	2.04454	1.88799	1.74146	1.60455	1.47686	1.35796
30	3.09789	2.87481	2.66392	2.46499	2.27776	2.10193	1.93713	1.78301	1.63915	1.50514	1.38054	1.26489
31	2.99030	2.76757	2.55743	2.35964	2.17390	1.99989	1.83724	1.68554	1.54435	1.41321	1.29167	1.17922
32	2.88945	2.66709	2.45771	2.26106	2.07683	1.90466	1.74415	1.59486	1.45632	1.32804	1.20952	1.10023
33	2.79473	2.57274	2.36414	2.16865	1.98594	1.81561	1.65724	1.51036	1.37445	1.24900	1.13347	1.02729
34	2.70559	2.48400	2.27619	2.08187	1.90068	1.73220	1.57597	1.43148	1.29819	1.17554	1.06296	.95984
35	2.62155	2.40037	2.19336	2.00022	1.82056	1.65393	1.49984	1.35773	1.22705	1.10717	.99749	.89739
36	2.54219	2.32143	2.11524	1.92329	1.74516	1.58038	1.42842	1.28869	1.16058	1.04345	.93664	.83948
37	2.46714	2.24680	2.04144	1.85068	1.67409	1.51116	1.36133	1.22396	1.09840	.98398	.87999	.78574
38	2.39604	2.17615	1.97161	1.78206	1.60701	1.44593	1.29821	1.16319	1.04017	.92842	.82722	.73581
39	2.32861	2.10916	1.90546	1.71711	1.54362	1.38439	1.23878	1.10608	.98557	.87646	.77799	.68938
40	2.26455	2.04556	1.84271	1.65558	1.48362	1.32624	1.18273	1.05235	.93432	.82782	.73203	.64615

[1] May represent such periods as: Annual, semiannual, quarterly, or monthly. Interest rate is per period monthly if the interest rate is ½ percent, 1 percent, etc., per month. If annual, the interest rate shown is per annum.

TABLE 10.—*Amount of loan amortized by $1 per periodic payment, or present value of $1 per periodic future income*

Number of periods [1]	Interest rate										
	½ percent	1 percent	1½ percent	2 percent	2½ percent	3 percent	3½ percent	4 percent	4½ percent	5 percent	5½ percent	6 percent
1	0.9950249	0.9900990	0.9852217	0.9803922	0.9756098	0.9708738	0.9661836	0.9615385	0.9569378	0.9523810	0.9478673	0.9433962
2	1.9850994	1.9703951	1.9558834	1.9415609	1.9274241	1.9134697	1.8996943	1.8860947	1.8726678	1.8594104	1.8463197	1.8333927
3	2.9702481	2.9409852	2.9122004	2.8838833	2.8560236	2.8286114	2.8016370	2.7750910	2.7489644	2.7232480	2.6979334	2.6730119
4	3.9504957	3.9019656	3.8543847	3.8077287	3.7619742	3.7170984	3.6730792	3.6298952	3.5875257	3.5459505	3.5051501	3.4651056
5	4.9258663	4.8534312	4.7826450	4.7134595	4.6458285	4.5797072	4.5150524	4.4518223	4.3899768	4.3294767	4.2702845	4.2123638
6	5.8963844	5.7954765	5.6971872	5.6014309	5.5081254	5.4171914	5.3285530	5.2421369	5.1578725	5.0756921	4.9955303	4.9173243
7	6.8620740	6.7281945	6.5982140	6.4719911	6.3493906	6.2302829	6.1145440	6.0020547	5.8927009	5.7863734	5.6829671	5.5823814
8	7.8229592	7.6516778	7.4859251	7.3254814	7.1701372	7.0196922	6.8739555	6.7327449	6.5958861	6.4632128	6.3345660	6.2097938
9	8.7790639	8.5660176	8.3605173	8.1622367	7.9708655	7.7861089	7.6076865	7.4353316	7.2687905	7.1078217	6.9521953	6.8016923
10	9.7304119	9.4713045	9.2221846	8.9825850	8.7520639	8.5302028	8.3166053	8.1108958	7.9127182	7.7217349	7.5376259	7.3600870
11	10.6770267	10.3676283	10.0711178	9.7868481	9.5142087	9.2526241	9.0015510	8.7604767	8.5289169	8.3064142	8.0925364	7.8868746
12	11.6189321	11.2550775	10.9075052	10.5753412	10.2577646	9.9540040	9.6633343	9.3850738	9.1185808	8.8632516	8.6185179	8.3838439
13	12.5561513	12.1337401	11.7315322	11.3483738	10.9831850	10.6349552	10.3027385	9.9856479	9.6828524	9.3935730	9.1170786	8.8526830
14	13.4887078	13.0037030	12.5433815	12.1062488	11.6909122	11.2960730	10.9205203	10.5631229	10.2228253	9.8986409	9.5896479	9.2949839
15	14.4166247	13.8650525	13.3432330	12.8492635	12.3813777	11.9379350	11.5174109	11.1183874	10.7395457	10.3796580	10.0375810	9.7122490
16	15.3399250	14.7178738	14.1312641	13.5777093	13.0550027	12.5611020	12.0941168	11.6522956	11.2340151	10.8377695	10.4621621	10.1058953
17	16.2586319	15.5622513	14.9076493	14.2918719	13.7121977	13.1661184	12.6513206	12.1656689	11.7071914	11.2740662	10.8646086	10.4772597
18	17.1727680	16.3982686	15.6725609	14.9920313	14.3533636	13.7535130	13.1896817	12.6592970	12.1599918	11.6895869	11.2460745	10.8276035
19	18.0823562	17.2260085	16.4261684	15.6784620	14.9788913	14.3237990	13.7098374	13.1339394	12.5932936	12.0853208	11.6076536	11.1581165
20	18.9874192	18.0455530	17.1686388	16.3514334	15.5891623	14.8774748	14.2124033	13.5903263	13.0079365	12.4622103	11.9503825	11.4699212
21	19.8879793	18.8569831	17.9001367	17.0112092	16.1845486	15.4150241	14.6979742	14.0291600	13.4047239	12.8211527	12.2752441	11.7640766
22	20.7840590	19.6603793	18.6208244	17.6580482	16.7654132	15.9369166	15.1671248	14.4511153	13.7844248	13.1630025	12.5831698	12.0415817
23	21.6756806	20.4558211	19.3308615	18.2922042	17.3321105	16.4436083	15.6204105	14.8568117	14.1477749	13.4885738	12.8750425	12.3033790
24	22.5628662	21.2433873	20.0301054	18.9139257	17.8849858	16.9355420	16.0583676	15.2469631	14.4954784	13.7986417	13.1516990	12.5503575
25	23.4456380	22.0231557	20.7196112	19.5234565	18.4243764	17.4131476	16.4815146	15.6220799	14.8282090	14.0939445	13.4139327	12.7833562
26	24.3240179	22.7952637	21.3986317	20.1210358	18.9506111	17.8768423	16.8903523	15.9827692	15.1466115	14.3751852	13.6624955	13.0031662
27	25.1980278	23.5596076	22.0676175	20.7068979	19.4640109	18.3270314	17.2853645	16.3295858	15.4513028	14.6430336	13.8981000	13.2105341
28	26.0676894	24.3164432	22.7267167	21.2812724	19.9648887	18.7641081	17.6670189	16.6630632	15.7428735	14.8981272	14.1214218	13.4061613
29	26.9330242	25.0657853	23.3760756	21.8443847	20.4535499	19.1884545	18.0357670	16.9837146	16.0218886	15.1410735	14.3331012	13.5907210
30	27.7940540	25.8077082	24.0158380	22.3964556	20.9302926	19.6004412	18.3920454	17.2920333	16.2888886	15.3724510	14.5337453	13.7648312
31	28.6508000	26.5422854	24.6461458	22.9377016	21.3954074	20.0004284	18.7362758	17.5884936	16.5443910	15.5928104	14.7239292	13.9290860
32	29.5032836	27.2695895	25.2671387	23.4683349	23.8491780	20.3887654	19.0688655	17.8735515	16.7888909	15.8026766	14.9041983	14.0840134
33	30.3515259	27.9896926	25.8789544	23.9885636	22.2918809	20.7657918	19.3902082	18.1476457	17.0228621	16.0025491	15.0750695	14.2302296
34	31.1955482	28.7026659	26.4817285	24.4985918	22.7237863	21.1318367	19.7006842	18.4111978	17.2467580	16.1929039	15.2370327	14.3681411
35	32.0353713	29.4085801	27.0755946	24.9986194	23.1451573	21.4872199	20.0006611	18.6646132	17.4610124	16.3741942	15.3905523	14.4982464
36	32.8710162	30.1075050	27.6606843	25.4888425	23.5562511	21.8322525	20.2904938	18.9082820	17.6660406	16.5468516	15.5360685	14.6209871
37	33.7025037	30.7995099	28.2371274	25.9694535	23.9573181	22.1672354	20.5705254	19.1425788	17.8622398	16.7112873	15.6739986	14.7367803
38	34.5298545	31.4846633	28.8050516	26.4406106	24.3486030	22.4924616	20.8410874	19.3678642	18.0499902	16.8678926	15.8047380	14.8460192
39	35.3530890	32.1630330	29.3645829	26.9025888	24.7303444	22.8082151	21.1024999	19.5844818	18.2296557	17.0170106	15.9286617	14.9490747
40	36.1722279	32.8346861	29.9158452	27.3554792	25.1027751	23.1147720	21.3550724	19.7927739	18.4015844	17.1590863	16.0461248	15.0462969

[1] May represent such periods as: Monthly, quarterly, semiannual, or annual payments or income. If period is monthly, the interest rate is also monthly, etc.

TABLE 11.—*Percentage of loan required to be paid periodically to amortize a given loan*

Number of periods [1]	Interest rate											
	½ percent	1 percent	1½ percent	2 percent	2½ percent	3 percent	3½ percent	4 percent	4½ percent	5 percent	5½ percent	6 percent
1	100.50000	101.00000	101.50000	102.00000	102.50000	103.00000	103.50000	104.00000	104.50000	105.00000	105.50000	106.00000
2	50.37531	50.75124	51.12779	51.50495	51.88272	52.26108	52.64005	53.01961	53.39976	53.78049	54.16180	54.54369
3	33.66722	34.00221	34.33830	34.67547	35.01372	35.35304	35.69342	36.03485	36.37734	36.72086	37.06541	37.41098
4	25.31328	25.62811	25.94448	26.26238	26.58179	26.90271	27.22511	27.54901	27.87437	28.20118	28.52945	28.85915
5	20.30100	20.60398	20.90893	21.21584	21.52469	21.83546	22.14814	22.46271	22.77916	23.09748	23.41764	23.73964
6	16.95955	17.25484	17.55252	17.85258	18.15500	18.45975	18.76682	19.07619	19.38784	19.70175	20.01790	20.33626
7	14.57285	14.86283	15.15562	15.45120	15.74954	16.05064	16.35445	16.66096	16.97015	17.28198	17.59644	17.91350
8	12.78289	13.06903	13.35840	13.65098	13.94674	14.24564	14.54767	14.85278	15.16097	15.47218	15.78640	16.10359
9	11.39074	11.67404	11.96098	12.25154	12.54569	12.84339	13.14460	13.44930	13.75745	14.06901	14.38395	14.70222
10	10.27706	10.55821	10.84342	11.13265	11.42588	11.72305	12.02414	12.32909	12.63788	12.95046	13.26678	13.58680
11	9.36590	9.64541	9.92938	10.21779	10.51060	10.80775	11.10920	11.41490	11.72482	12.03889	12.35707	12.67929
12	8.60664	8.88488	9.16800	9.45596	9.74871	10.04621	10.34840	10.65522	10.96662	11.28254	11.60292	11.92770
13	7.96422	8.24148	8.52404	8.81184	9.10483	9.40295	9.70616	10.01437	10.32754	10.64558	10.96843	11.29601
14	7.41361	7.69012	7.97233	8.26020	8.55365	8.85263	9.15707	9.46690	9.78203	10.10240	10.42791	10.75849
15	6.93644	7.21238	7.49444	7.78255	8.07665	8.37666	8.68251	8.99411	9.31138	9.63423	9.96256	10.29628
16	6.51894	6.79446	7.07651	7.36501	7.65990	7.96109	8.26848	8.58200	8.90154	9.22699	9.55825	9.89521
17	6.15058	6.42581	6.70797	6.99698	7.29278	7.59525	7.90431	8.21985	8.54176	8.86999	9.20420	9.54448
18	5.82317	6.09820	6.38058	6.67021	6.96701	7.27087	7.58168	7.89933	8.22369	8.55462	8.89199	9.23565
19	5.53025	5.80518	6.08785	6.37818	6.67606	6.98139	7.29403	7.61386	7.94073	8.27450	8.61501	8.96290
20	5.26664	5.54153	5.82457	6.11567	6.41471	6.72157	7.03611	7.35818	7.68761	8.02426	8.36793	8.71846
21	5.02816	5.30308	5.58655	5.87848	6.17873	6.48718	6.80366	7.12801	7.46006	7.79961	8.14648	8.50046
22	4.81138	5.08637	5.37033	5.66314	5.96466	6.27474	6.59321	6.91988	7.25457	7.59705	7.94712	8.30456
23	4.61346	4.88858	5.17308	5.46681	5.76964	6.08139	6.40188	6.73091	7.06825	7.41368	7.76696	8.12785
24	4.43206	4.70735	4.99241	5.28711	5.59128	5.90474	6.22728	6.55868	6.89870	7.24709	7.60358	7.96790
25	4.26519	4.54068	4.82635	5.12204	5.42759	5.74279	6.06740	6.40120	6.74390	7.09525	7.45494	7.82267
26	4.11116	4.38689	4.67320	4.96992	5.27688	5.59383	5.92054	6.25674	6.60214	6.95643	7.31931	7.69044
27	3.96856	4.24455	4.53153	4.82931	5.13769	5.45642	5.78524	6.12385	6.47195	6.82919	7.19523	7.56972
28	3.83617	4.11244	4.40011	4.69897	5.00879	5.32932	5.66027	6.00130	6.35208	6.71225	7.08144	7.45926
29	3.71291	3.98950	4.27788	4.57784	4.88913	5.21147	5.54454	5.88799	6.24146	6.60455	6.97686	7.35796
30	3.59789	3.87481	4.16392	4.46499	4.77776	5.10193	5.43713	5.78301	6.13915	6.50514	6.88054	7.26489
31	3.49030	3.76757	4.05743	4.35963	4.67390	4.99989	5.33724	5.68554	6.04435	6.41321	6.79167	7.17922
32	3.38945	3.66709	3.95771	4.26106	4.57683	4.90466	5.24415	5.59486	5.95632	6.32804	6.70952	7.10023
33	3.29473	3.57274	3.86414	4.16865	4.48594	4.81561	5.15724	5.51036	5.87445	6.24900	6.63347	7.02729
34	3.20559	3.48400	3.77619	4.08187	4.40068	4.73220	5.07597	5.43148	5.79819	6.17554	6.56296	6.95934
35	3.12155	3.40037	3.69336	4.00022	4.32056	4.65393	4.99984	5.35773	5.72705	6.10717	6.49749	6.89739
36	3.04219	3.32143	3.61524	3.92329	4.24516	4.58038	4.92842	5.28869	5.66058	6.04345	6.43664	6.83948
37	2.96714	3.24680	3.54144	3.85068	4.17409	4.51116	4.86133	5.22396	5.59840	5.98398	6.37999	6.78574
38	2.89604	3.17615	3.47161	3.78206	4.10701	4.44593	4.79821	5.16319	5.54017	5.92842	6.32722	6.73581
39	2.82861	3.10916	3.40546	3.71711	4.04362	4.38439	4.73878	5.10608	5.48557	5.87646	6.27799	6.68938
40	2.76455	3.04556	3.34271	3.65558	3.98362	4.32624	4.68273	5.05235	5.43432	5.82782	6.23203	6.64615

[1] May represent such periods as: Monthly, quarterly, semiannual, or annual payments. If period is monthly, the interest rate is also monthly, etc.

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